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THE PHOTOGRAPHIC TIMES.

AND

AMERICAN PHOTOGRAPHER

A WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

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THE PHOTOGRAPHIC TIMES.

VOL. XXIII. JULY 14, 1893. No. 617.

H. R. H. THE INFANTA PRINCESS EULALIA OF SPAIN.

WE take pleasure in presenting our readers, in this Convention Number, with an excellent portrait of H. R. H. the Princess Eulalia—the best photographic portrait which Her Royal Highness has had made in this country. The negative is by the Messrs. Pach Bros. of Broadway, New York City, who have long enjoyed an enviable reputation as photographers of the very highest order. The public press of late has printed so much concerning the gracious subject of this sketch that it is unnecessary for us to add any word of comment here. Everybody knows who the Princess Eulalia is, though everybody has not seen so excellent a likeness as we have the pleasure of presenting our readers in this number of THE PHOTOGRAPHIC TIMES.

The Messrs. Pach Bros. made a number of negatives of H. R. H. both large and small, but the one selected for THE PHOTOGRAPHIC TIMES was considered by H. R. H. to be by far the best one. It has been reproduced by the New York Photogravure Co. by the well-known high-grade copperplate (photogravure) process.

ENLARGED.

IT again becomes necessary to enlarge THE PHOTOGRAPHIC TIMES. The present issue is a double number containing twenty-four pages of reading matter, with many extra illustrations. Subsequent special numbers will also contain double and triple the number of pages of an ordinary issue as heretofore; but the regular issue will be increased by just one-third the present number of pages, and will therefore contain sixteen pages instead of twelve. It will be embellished each week as heretofore with a full page picture; but in addition to the frontispiece, will contain numerous half-tone and other illustrations throughout the reading pages.

The subscription price will remain the same as at present. Our publishers are enabled to give their subscribers more for the money than hitherto by reason of the fact that the support of the magazine has continued to grow more liberal from week to week, and our readers are properly entitled to the benefit of this increased support on their part. As THE PHOTOGRAPHIC TIMES grows in popularity and prosperity it will continue to give its readers more for their money. Of course it is not for us to say that we have the best photographic magazine published in the world, but it would be an easy matter to print here a hundred testimonials from the highest authorities in the land asserting that very thing.

The editorial staff of THE PHOTOGRAPHIC TIMES has recently been increased by the addition of Mr. Walter E. Woodbury (son of the famous W. B. Woodbury), of England, who has had many years' experience in photographic matters, both practical and theoretical. After being instructed by his father in all those departments of photographic work with which his name is inseparably connected, he became a pupil of Dr. Liesegang; from that learned doctor he was able to obtain a considerable knowledge of a great number of subjects. Ever since he has been engaged in practical photographic pursuits, so that he is qualified to impart much valuable information to our readers from week to week.

In addition to the many well-known contributors who will continue to furnish our readers with the latest and best in the various departments of photographic activity, men known on two hemispheres, of whom we might mention W. J. Stillman, H. P. Robinson, W. Jerome Harrison, G. Watmough Webster, W. K. Burton, Andrew Pringle, Clarence E. Woodman, G. M. Searle, John Carbutt, Oscar G. Mason, W. H. Sherman and many others.

We have secured the services of others equally as well qualified to instruct our readers, so that THE PHOTOGRAPHIC TIMES, with this number, proceeds upon its career of usefulness with greater facilities than ever before.

SOMETHING NEW—OUR QUARTERLY COMPETITION.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph, and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* only must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

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2d The camera must be held in the hand during the exposure.

3d. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.

4th. The prints must be mounted but not framed.

5th. The last day for receiving competitions will be September 30th The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz the renowned amateur photographer, and Mr. Geo. G. Rockwood, who, we hardly need state, is one of the leading photographers of America.

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WHEN we consider the enormously wide field photography has entered upon, and how all branches of science, and mostly all mechanical and industrial pursuits, seek assistance from her, and further, when we see the artist using photographs to guide him in his work, and find just cause to admire the beautiful productions made by the action of light and chemicals regulated by the skill of man, it is easily understood that to practice the so-called art, preliminary education and direct instruction are required before perfection can be obtained. The making of light-pictures has been said to be mere mechanical work, especially at the present time when such enormous facilities are offered, but if we compare these facilities with the difficulties encountered in the older processes which, on the whole, required at least a superficial knowledge of the properties of the chemicals placed in our hands, not so necessary in these days of ready-coated plates and papers, made-up developing or

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toning solutions, enabling almost everybody to make a nice little picture, it seems justifiable when we hear people ask "of what use is it having schools of photography?" To superficial observers, to amateurs who do successful work in their own line, this question may perhaps be answered in the spirit of the questioner. But whenever we go a little above landscape making or genre pictures in small dimensions, and when we consider photography as a grand total, the doctrine is by no means untenable.

Let us turn now to the other branch of our fellow craftsmen, the professional, who desires to do not only good technical, but also good artistic, work, and among whom a great rivalry has always existed. Professionals are not expected to do portrait work only. Here and there a landscape, perhaps a reproduction, and occasionally they are called upon to do purely scientific work, microscopical, spectroscopical, astronomical, or geognostic, and it is in this latter instance that the professional generally fails entirely, where the more endowed amateur better acquainted with the subject, succeeds. Professional photographers constantly encounter many difficulties owing to the ignorance of the properties of the chemicals they are using or from want of knowledge in optics, or from inefficiency in the art of arranging, posing and lighting the subject. When we consider all that it is desirable that the photographer should know and how he should possess a better scientific education, the question as to the desirability of a school of photography must then be answered in the affirmative.

But what is a school of photography expected to do? In Europe, namely: France, Germany and Austria, where young people are indentured for a number of years, the apprentice besides learning the technical part of the trade should also be instructed in the scientific and artistic. The principals of small galleries are, however, most frequently technicists only, and not able to give the desired instruction in scientific matters, but in almost all the larger towns of Germany and Austria, photographic evening schools exist and the principal turns his apprentices over to them, to their mutual benefit. Such opportunities are not offered in this country, and although it has been said that our productions can vie with any of other countries or nations, our famous photographers are in the main self-made and self-instructed men. But why should we not assist those endowed with lesser abilities and working under less favorable circumstances to attain the same or to similar perfection? Well regulated schools are, then, the only resort of these people. They are indeed very desirable at present.

We find in different countries quite a large number of photographic schools. England has them in connection with her many military and scientific institutions. France possesses several. Eder and Vogel represent Austria and Germany. Karlsruh, Braunshweig, and Zurich in Switzerland, have first-class schools; but in America, notwithstanding the many efforts made, we have only one school worthy the name, that of Chautauqua.

All these institutions labor under difficulties. Every one of them has its own skeleton in the closet, much to its disadvantage. Eder's and Vogel's are assisted by governmental aid, and they have all possible means of instructing successfully, but there is a lack of scholars. These schools are not visited by as great a number as they are expected to be. The other schools mentioned are mainly evening schools, and should not correctly be placed in the same category. The Chautauqua School, with her hundred and fifty students every year, labors under the difficulty of insufficient subsidies to make her not only a first-class institution, but to enable her to surpass all those much celebrated schools mentioned above. To attain this end, it has been frequently proposed to amalgamate the Chautauqua School with one to be established by the P. A. of A. To do this should not present difficulties if the Association will only set aside a fund for the purpose, by which a salary can be paid to additional instructors and to purchase apparatus sufficient to meet all demands.

A school of that kind would do an enormous amount of good. The method of instructing by correspondence which has proved so successful should also be adopted in this amalgamated school, and the practising classes should be held both summer and winter. We require instruction in physics and experimental chemistry. Posing and lighting the subject requires ocular demonstration as well as practical work in the skylight and printery. The school should be provided with a spectroscope and a good microscope, and facilities given for photo-mechanical printing, at least in half-tone, photo-type and photo-lithographing. There are scores of men among us all perfectly capable and willing to act as instructors, and some of them would not even demand a compensation for their work. While the great Photographers' Association of America is in session, we move that efforts be made to establish a National school of photography as described above. Who will second the motion?

RECENT DISCOVERIES IN COLOR-PHOTOGRAPHY.

FROM a time ranging beyond the memory of man, and long before the present process of photography was invented, announcements have been made of the discovery of a process giving images of all the glorious colors of nature.

Like the reports of the sea-serpent these announcements have been made periodically. First it was Seebeck in 1810, then Herschel, Hunt, Becquerel, Niepce, Jr., Simpson, Poitevin, and St. Florent. All the foregoing experimenters tried hard to solve the problem. There have, too, been many cases of deliberate fraud. As far back as 1851 an American preacher named Hill obtained almost universal credence for his statement that he had invented a process by which he could produce photographs "glowing with all the colors of nature."

The reverend gentleman succeeded in obtaining very considerable sums of money from photographers for subscriptions to a book which would contain all the details of his marvelous discovery. The book, which after repeated delays at length appeared, was an unmistakable swindle. Other similar cases could be cited. In England, many companies have been formed for the purpose of making a natural color process. Large sums of money are subscribed each time, although the money invariably goes to the company promoters and to the bankruptcy court. The process itself usually consists in a photograph colored at the back or between the film and the paper.

It is lamentable that the ignorance of the lay press of photographic matters is apparently so great. Directly there is a rumor that expériments have been made by any one in photography in colors, no matter by what means, they unhesitatingly blaze forth to the world such announcements as "Photography in colors discovered at last," and devote a column or two to considering the damaging effect this discovery will have upon artists whose occupation they would usually have us believe would be gone forever.

Only recently we have two such instances First, in the composite heliochromatic process of Ives, and secondly, in the interference process of Lipmann, improved by the brothers Lumière.

Lest any of our readers should have any mistaken idea about these discoveries we will endeavor to explain them. Ives's process is the more important, and this is practically a method of imitating nature by a superposition of monochromatic images. Basing his experiments upon the assumption that there are to the eye three sensations only, *i. e.*, red, green, and blue-violet (all other colors exciting two or more of these sensations), he proceeds to make three negatives of the colored object. First, one taken through a screen which allows the color corresponding to the red sensation only to pass through; another negative is taken through a screen allowing only the visual green to pass, and a third arranged for the blue-violet sensation. Now, if transparencies were made from these negatives in the three colors and combined a colored image resembling the original would result from the combination. Ives's method, however, is to again employ the principle of absorption. He causes the light passing through the red sensation transparency to traverse a red-colored screen. In front of the green sensation transparency a green screen is placed, and in front of the blue-violet transparency a nearly pure blue. When the images of these transparencies are superposed on the screen a colored image faithful to the original is produced.

Lipmann's process is due to the interference of light. The term interference is given to the reciprocal action which two rays of light exert upon each other. Examples are seen in thin films, a soap-bubble for instance ; or if we moisten a sheet of glass and press another glass on the top of it, the thin film of water between the two glasses will produce all the colors of the spectrum. Upon this Lipmann's process is based. No really lucid description of the process has been given, but it would appear that the colors of an original can in no way be reproduced. A red, for instance, may give a red image, but at the same time, by increase of exposure, give a blue or green or any color. Moreover, these images are difficult to be seen ; the plate must be viewed only at a certain angle, the colors varying with the inclination. At no time do the colors ever truly represent all in the original, or at least the inventors have, as far as we can find out, studiously avoided any comparison. We are told by others that the whites are a dirty gray and the colored parts are a long way from the colors of nature.

It will therefore be seen that with neither of these processes is the problem solved. In justice to Mr. Ives we must say that he in no way pretends his process to be a natural color one. He terms it Composite Heliochromy. We have no hesitation in saying that, except that our knowledge of color vision has been much extended, *photography in natural colors is to-day as far off as ever it was.*

Will it ever be possible, you will ask? Captain Abney says not ; but we would avoid making such a direct assertion. Many of our most important inventions now in common everyday use would

have, years ago, been regarded as impossible. Why not the same then with succeeding years. Nothing is more imminent than the impossible: what we must always foresee is the unforeseen.

EDITORIAL NOTES.

For the benefit of our readers visiting the Photographer's World's Fair Convention, which will be held from July 18th to 21st, we reproduce the photograph of the place of meeting. It is the Second Regiment Armory, situated at the corner of Curtis Street and Washington Boulevard, Chicago.



Where the Convention will be Held.

The permanent increase in the size of The Photographic Times, which we announce in another column, will, we trust, be very welcome to our readers. We are very desirous that there should be a closer bond of friendship between our subscribers and our editorial staff. Partly to encourage this we are starting a quarterly competition, and offering prizes for the best photographic achievements. Particulars of the first will be found elsewhere. If these are taken up with any degree of enthusiasm, and we can see that they are really desired, we shall have no hesitation in increasing their number by making them monthly, or even weekly, competitions. Further, we shall always be very pleased to assist our readers in every way possible. The benefit of our experience in many branches of practical photography is entirely at your service. Do not be afraid of writing to us. We shall always be pleased to hear from you, to see and (if you wish it) to criticise any photographic work.

It is well-known that prolonged exposure to light of a bromide plate will produce a reverse action, a positive instead of a negative being obtained, but the process has always been considered a very unsatisfactory one. Our own trials in this direction have met with but partial success. We have often produced an image, a negative in some parts and positive in others, which we need hardly state was of very little use for any purpose. Others, however, have apparently succeeded better. Mr. W. Bishop, an English writer, states that he employs this process in obtaining reversed negatives directly from a negative, thus entirely dispensing with the necessity of making an intermediate positive. He places an ordinary bromide plate in the printing frame, behind the negative, and exposes to strong daylight for about five seconds ; or if the light be weak, up to thirty seconds may be required. The necessary exposure is a matter of careful judgment based on experience. For development he uses pyro and ammonia or metol. If the exposure has been of correct duration the reversed negative will develop up in the ordinary way. The density must be judged by looking through the film. If over-exposed the image will sometimes appear as a ghost of a positive which will appear to die away as the negative comes up, but the best effects are only obtained by correct exposure.

M. Marey is pursuing his studies in chronophotography. He is apparently determined to obtain by means of photography reliable records of the movements of every species of animal. His latest investigations have been in the motions of swimming animals. In the *Comptes Rendus* is

described a form of apparatus which he has specially devised, and which he thinks will prove of considerable use in hydrodynamics. A tank is filled with water in which is suspended a number of small bodies consisting of a mixture of wax and rosin silvered over. The density of the water is then modified by the addition of salt or other suitable substance, so that the small bodies are disseminated throughout the liquid. The side of the tank has a backing of black velvet, and light is reflected into the water by means of mirrors, so placed that they will illuminate the suspended particles. A number of interesting photographs are given.

It is curious to note the various opinions of artists as to whether the camera has, on the whole, been beneficial or detrimental to art. The editor of a new English periodical, *The Studio*, has addressed such a question to several eminent British artists. Sir Frederick Leighton, in reply, says: "Photography may be of great use or the reverse, to an artist, according as it is used with or without judgment or intelligence." Alma Tadema boldly expresses his opinion that "It is of the greatest use to painters, and has had a most healthy and beneficial influence upon art;" while Sir John Millais will only admit that "It is often of value to the artist." Mr. W. P. Frith says: "Photography has not benefited art," and he further states that it has destroyed miniature painting and injured engraving. Other artists refused to express any opinion on the subject, but Mr. Crane thinks it will do a very considerable service in the long run in defining the essential difference between imitative and inventive art. Mr. Pennell's reply is characteristic of that gentleman. He says: "I don't think photography has had any influence upon modern art at all, that is, upon the art of men like Whistler, Degas, Chavannes, Rodin, Gilbert and Gaudeur. The use of photographs by artists, however, is a very different matter, and I do not propose to give away the tricks of the trade. By refraining, I have no doubt I shall receive the silent blessings of the multitude of duffers among whom I find myself. Yours truly."

The subject of a standard light is become of such paramount importance to photographers as to be justly entitled to our consideration, if we shall not be accused of pursuing a burning question, and until it is settled, the question of plate speed must remain in a very unsatisfactory position. Warneke's sensitometer seems to have grown into disfavor, and rightly so. It is so defective in many ways that it is difficult to understand how it became a recognized standard, and has been adhered to up to the present day by many. The phosphorescent tablet used cannot, by any means, be said to be a perfect standard light. For one thing it is just as sensitive to heat as to light influences. As bearing on this point of phosphorescing standards, M. C. Henry has some valuable remarks in a recent issue of *Comptes Rendus*, and in justice to Mr. Warneke it must be said that to a great extent the latter's experiments, made a considerable number of years ago, gave similar results to those of the later works in the same direction. M. Henry states that, within somewhat wide limits, the quantity of light emitted from a surface of phosphorescent zinc sulphide at a given instant is independent of the distance of the exciting light (of burning magnesium), as, also, of the time of illumination and the thickness of the zinc layer. Further, he states that, no matter how or by whom the sulphide was made, the same law of the loss of its luminosity applies still further, with a thickness of layer ranging from .45 mm. to double that thickness, so long as not less than 15 cm. of wire is burnt, at a distance not exceeding 28 cm., the maximum intensity of luminosity is not altered by the distance of the light nor of the length of magnesium ribbon or wire employed.

Many eminent men are experimenting on various phases of this subject. Thus Dr. W. Lapraik, in the German *Journal of Practical Chemistry*, incidentally alludes to it from the aspect of quality of light. Premising the importance of a constant source of light, he says he found no difference in certain absorption spectra he was investigating whether electric light, sunlight, reflected from a heliostat, or the flame of a quick-contraction petroleum lamp was used.

Again, according to a report recently presented to the Reichstag, the physicists of the Imperial Physico-Technical Institute at Berlin, have been endeavoring to improve the practical application of Siemen's unit. This it will be remembered depends on the light emitted by platinum at its melting point. They found that at any given temperature the ratio of the total radiations to that transmitted by a layer of water of a certain thickness was constant, within two per cent. for plates of platinum of different thicknesses and from different sources. The radiation was measured by a very delicate bolometer. They were able to make strips of platinum the one-thousandth of a

millimetre thick by welding a piece of platinum foil to one of silver ten times as thick, rolling the combined sheet between rollers till it was only a hundredth of a millimetre thick, and finally freeing it from silver by acid. This enabled a remarkable amount of sensitiveness to be obtained in the bolometric readings.

Lastly we have M. Rigollot's electro-chemical actinometer, a further account of which is given in *Comptes Rendus*. He finds that the electromotive force developed when light falls on a plate of oxidized copper immersed in a solution of a metallic iodide, bromide, or chloride, can be considerably increased if it has been previously dipped in serac coloring matter such as eosine or safranine. This increase of sensitiveness is different for rays of different wave lengths, and those rays which produce the maximum effect, for any one coloring substance depend on the position of the absorption band in the light which is transmitted by that substance. The remarkable similarity between these results and the well-known color sensitizing of gelatino-bromide plates will at once strike the reader.

The Practising Class of the Chautauqua School of Photography will be opened at the Assembly Grounds on July 15th, as announced. The prospects of a successful season are as good as ever before, notwithstanding the absence of so many otherwise enthusiastic students who prefer to spend their vacation at the World's Fair in preference to the quiet and peaceful "City of the Forest." It is thought, however, that on their return home, at least, those residing in Eastern or the Middle Atlantic States will stop at Chautauqua to develop their plates or films under the guidance of the Instructor of the School. Professor Ehrmann will write his usual Chautauqua letters to this magazine. They will appear every second week during the session of the class.

In addition to the illustrations we present with this number, we had intended including a very handsome portrait of the Duke of Veragua, printed upon the well-known Ilo Collodion Paper. All the prints were made and were laying upon a table ready for the toning operation, when the door was carelessly left open by one of the operators, and the light quickly ruined nearly all the unfixed prints. We hope, however, to include these in an early number.

"RUTLEDGE."

"As slight a fancy as ever poet,
Strung on the slenderest thread of rhyme."



I READ "Rutledge" long before I owned a camera, and my first thrill of sight-seeing joy was tasted when as a child I rode slowly on horseback past the lonesome Danskammer place, caring never a fig for the historical fact that here Henry Hudson's crew sailing up the Hudson saw Indians dancing and gave it the Dutch name of Devil's Dancing Chamber; but seeing only with my soul's eye the house where "I" met her hero and mine, "Arthur Rutledge," where "Josephine" flirted and poor ill-fated "Victor" committed suicide. Yes, it was all very dreadful and delightful, and that I could not make believe hard enough to satisfy myself was my only trouble. Which was "Alice's room, that never was opened? Was the lake spoken of in the story of our river? And did those morning glories, damned by the great "Mr. Rutledge" as frailest and shortest lived of flowers, scarcely worthy the passing admiration their beauty excites," grow in the garden beyond the lawn? It all happened in the land of Never, but is not that far-away country of Long Ago equally unreal to us? I do not read "Rutledge" to-day, but probably other school-girls are crying over its pages, and for their sakes I point my lens to the house where Miss Coles, now Mrs. Harris, laid the scene of her first novel. The author—we called them authoresses in those days—was but a girl herself when she chose this site for the slightest of reasons. She was visiting in the neighborhood and heard of the famous murder known as the Danskammer mystery, and therefore elaborated another mystery atop. The real fact in the case is even to-day shrouded in unfathomable secrecy like the Lizzie Borden affair. A woman was found murdered on the lonesome Marlborough road; no body identified, a man accused, the trial going on, a funeral sermon being preached, when, lo, into the church or court-room walks the dead woman alive, or the woman who was supposed to have been identified bright and bonny as a May morning.

"My God!" cries a bystander, "do you know,

Miss, we were to bury you this afternoon and hang your murderer to-morrow?"

"No, sir," was her quiet answer—and here the story ends. The dead body was never identified, the man who did the deed never found, and what is the most wonderful of all, the woman who was not murdered, lived happily to a good old age, laughed over the tragedy, and did not even succumb to nervous prostration.

"I call it an old house," writes Miss Coles, speaking in the person of her heroine and later of her heroine's maid, "because it impressed me at first as such. It was solid and dark, and excepting my room and one or two others on the same floor had very little that was modern about it. It had been built in the time of "Mr. Rutledge's" father, and was called the finest house in the country. Loads of money he spent on it; and workmen had been sent hundreds of miles to do the carving and paint the walls, and no money had been spared to make it a fine place, and, indeed, there was none like it anywhere around."



This is a fairly accurate description of the house, and its history as an old river captain tells me that when he and his crew sailed past the Danskammer, the sailors used to say "Ah, when we are rich, we will buy here." This was more than fifty years ago, before the days of steam, and the large white house with its broad piazzas and Corinthian pillars was already a noted one. Later, it was burned, and in 1834 the present stone mansion was erected on the same site.

On re-reading "Rutledge" I am surprised to find few lengthy word pictures of the house, beyond the scanty one already quoted, while the grounds, grandiosely called "the park," are barely noticed in detail. I am thus unwillingly convinced that I imagined most of the close resemblance between the story and the place when I peeped at it through the locust avenue. Miss Coles did not write with the modern novelist's photographic pen; she had better things to tell us, and we forgave her gladly. Plots were not inartistic in 1860, nor solid pages of intrigue and love-making, tears and most palpable kisses thought dull reading. No, indeed! I am only an amateur photographer, so I leave her to tell the story and take the picture myself—*Chacun a son metier*.

I have determined this shall be my 5 x 8 summer, not that these dimensions measure the size of my room at a boarding-house, as may be the case with many who read THE PHOTOGRAPHIC TIMES this August, but because I have temporarily laid aside my hand camera, and hope by the aid of teams of oxen and strong men to take my excellent old-fashioned view machine wherever I go. Maybe I shall not go far. No oxen being available on Decoration Day, I put the 5 x 8 and all the paraphernalia in our buckboard, drawn by one horse—who has since failed in health—and drove six miles northward and took my picture. That is the plain story. The family who now occupy it were most courteous in permitting me to set up my "threelegs" in their long grass; the gardener flattering asked where the view was to be exhibited. I was fortunate enough to have left nothing at home, my plates were not light-struck, my stops did not lose themselves in the grass, the shutter did not fall off as I squeezed the bulb—in short my annals are tiresome because happy. My only regret was my inability to get a full front view, from the fact that the house stands on a plateau so near the river that it was impossible to get far enough away to get it all on the plate without running down the steep bank and thus losing effective foreground. I stood on the southern side, therefore, and contented myself with a part of the lovely old home as seen through a vista of even lovelier old trees. I am sure my picture contains that weird chamber, "Alice's," where Victor hid, that room, "at the end of the upper hall between the corner room on the east and the corner room on the west," whose closed door was forever concealed by a wardrobe, where Kitty hid the poor young Frenchman, "I"'s lover whom she did not love, where "I" found him dead on the bed, "one arm thrown above his head, the other buried in his bosom, his dark curls lying distinct against the pillow, his manly limbs rigid, a crimson stain;—" but, I can quote no more, I do not revel in accounts of suicides and murders as I used. It is still summer time at the Danskammer, but one wants sunshine within and without to enjoy the contrasts of horror.

A last view of the long locust avenue, up and down which the gayest of gay parties used to canter, and then I, a sober party of one, walk my horse slowly homeward to develop my views; but in so doing to lose forever the "Rutledge" myth, for to overtake a fancy is to kill it.

Adelaide Skeel.

A PLEA FOR A HOLIDAY.

"All work and no play makes Jack a dull boy," and "Rest and recreation are due to every working-man worthy of his hire." How well can these legends be applied to the assistant photographer who toils every day of the week, Sunday included, and, since the advent of the gelatine plate, is compelled to add several hours of night-work to the legitimate ten hours of the day.

On legal holidays, when almost every office, store or shop is closed, the photographic studio remains open to receive those who for religious scruples do not go out on Sunday to have a picture taken. But Sunday is the great harvest day of the photographers, especially of those whose business is not carried on in any very extensive scale, and in their galleries more work is done on the Sabbath than on any day of the week.

Business has been and is still very slack. The proprietor of a photographic establishment must be very economical to enable him to make both ends meet, and his assistants are necessarily required to return a full equivalent in work, and very often much more so, for a very scanty salary.

The capital and labor question is a very difficult problem to solve, almost impossible, it appears. But I will drop these distinct relations as far as professional photographers are concerned, and speak of them only as the conditions to attain mutual satisfaction between employer and employe.

The proprietor of a photographic shop must rely upon the assistance of others, and were he able to carry on business without any help at all, the degree of prosperity attainable would and could possibly be but to a very limited extent. Individually he may be, perhaps, more comfortable, and lead a comparatively quiet life, but the circle he moves in must indeed be of similar limit.

The more work is done the greater the income and the larger the profit. For this reason alone should the proprietor of a photographic establishment treat his employes with generosity and liberality; and as it so frequently happens, the operator is a much better man, as far as art, technic, or chemical knowledge is concerned, a chasm opens up between the two parties which can be bridged over by the employer only.

Both parties are dependent upon each other. The revenue derived from the work done goes in the main part to the proprietor, a small portion of it to the employe, and properly so. The first party has resumed greater responsibilities than the second; he must earn the interest to the capital invested, the rent to be paid, the cost of the material used, the second party's hire, leaving as his own profit less, perhaps, than the average salary paid. The employe, if the salary he receives is adequate to the quantity and the quality of the work done, is in that respect more independent and better situated than the employer.

But there is another side in the relations of employer and employe where the latter is decidedly in a disadvantageous condition, namely, the hours of work, the days of employment, the, in most cases, total absence of recreation or rest.

In largest establishments, where many men and women are employed, their relations are not so perceptible, a holiday can well be granted to an operator, a printer, or a retoucher without interfering with the run of the business, and regular vacations are within the reach of possibility.

Medium or small galleries can not very well give the same privileges to their assistants. For instance, if there are but three of them in one place, an operator, a retoucher and a printer. Unless the proprietor is an expert in either of these branches, the absence for one day only of either of them would cause an interruption of the whole business, and material pecuniary loss, not impossible to be borne by the small proprietor. For that reason the services of an assistant photographer in a small shop must be likened to the conditions of a serf or boneltman. Work, work, work, till the body is weary and worn. No rest, no peace.

Our, at times, erratic reformers—those especially who want *per force* to convey scientific and artistic education to our young operators—have failed entirely in their endeavors for these reasons. And were the young man or the young woman full of desire to learn by visiting picture galleries, museums of art, schools of chemistry and physics —the want of time to do so prevents them in the first instance, for the struggle for existence is the first in the life of a human being.

But there are other reasons which condemn the system of everlasting work adopted in smaller galleries. These are the economical, the hygienic and the religious points. The worker without rest relapses, finally, into indifference, his health becomes endangered, and the employment on the Sabbath day prevents him from worshiping his Creator, demoralization resulting. Upon religious elevation rests honesty and integrity, two virtues every employer wishes, even demands of his employes. Why, let me ask, do so many employers lay every obstacle in the way of their assistants to enjoy a day, or at least a half-day's rest once a week? Were these men prudent enough, and capable of establishing among their

assistants regularly recurring holidays, they would soon be convinced of the great utility of the method. Grant to them the occasional liberty I speak of, whether the day is employed in athletic sports, in reading, in roaming about or in going to church, the beneficial consequences of which will become apparent very soon, and contribute much to the harmony and a happy sociability of a photograhic gallery. *Charles Ehrmann.*

SUPPLEMENTARY REMARKS ON PRINTING IN NATURAL COLORS.

We require three negatives for color printing. One freed from the yellow of the original, one from which red is eliminated, and the other one without blue.

To make such negatives properly we must select appropriate sensitizers as well as ray filters.

The application of ray filters may be explained as follows :

Had we, for example, sensitized a plate for the reproducing of an original containing no red, but all other colors, and for that purpose sensitized for the yellow-green with eosine, blue, violet, and all other colors would still act upon the plate with the usual energy because of their greater actinicity.* To prevent this forcible action we pass the light rays through colored media, which depresses their actinic power.

It is self-evident that for green sensitive plates green ray filters must be used, which, when the plate is ultimately employed for color printing, must be specially capable of absorbing all red rays. A plate prepared in this manner forms the foundation of red printing. As the ray filter has in this instance absorbed all light of the same color and quality, that is the red rays emanating from the original have been absorbed by the ray filter, and cannot possibly become active, the red pigment must be complimentary to the ray filter.

The light rays absorbed should be reproduced in the copy, and it is for us to find the color capable of doing it.

Mature consideration at once shows how the ray filter is complimentary to the absorbed rays, and diametrically so, the pigment to the color of the filter.

Apparently it is difficult to find complimentary pigments ; in reality it is but a simple matter, and I will endeavor to show by three methods how to do so.

If colors approximately complimentary to each other are looked at through the ray filter at the same time, the one reduced to black or gray is complimentary to that of the filter. Perfect complimentarity of colors is, however, as much out of the question as that of finding pigments spectroscopically alike to the optical sensitizer.

Closer observations with more accurate results may be made with Maxwell's revolving disks (Fig. 1).

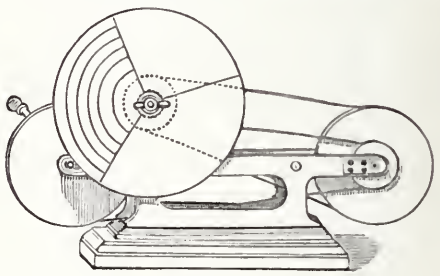


FIG. 1.

Part of the disk is painted the color of the ray filter, other segments with colors above described, the rest is black.

By rapidly revolving the disk the circle or zone showing the purest gray is the color best to accord to the purpose.

The third method, described many years ago by Dore, the great physicist, is certainly the most reliable.



FIG. 2.

Objects viewed through a calcium spar prism (Fig. 2), are seen double ; with an achromatic prism of the same material the images separate, they move apart from each other. If then we apply the color of the ray filter to a black piece of paper, two pictures of it will be seen. If, furthermore, several strips of paper representing the different colors mentioned, are so placed upon the black paper, that one of the filter images seen through the prism covers a portion of any or either of them by a series of consecutive observations, a pure gray will be found ultimately (see Fig. 3).

This gray is the representative of the most accurate complimentary color of the ray filter.

These observations are purely objective, not dependent upon differences in the eyesight.

The axiom proposed : "The pigment must be identical with the optical sensitizer," has proved to be tenable but in rare instances, and for several good reasons. Supposing we take for blue printing a sensitizer, sensitizing for red-orange only, its color should be blue. That, however, is but rarely so, and even cyanin in acid solution is colorless,

* Actinicity—chemically active.

although its red sensitive force is not impaired when in that condition.

Captain Huebl recommends rose bengal, which

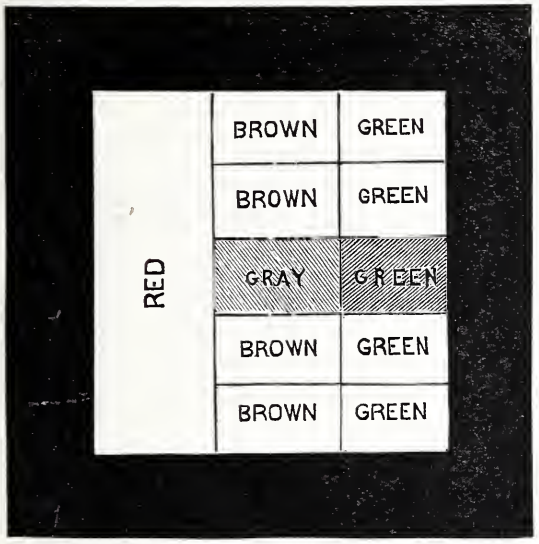


FIG. 3.

is red,* and with them red sensitiveness is as well attained as with chlorophyl or erythrosinate of silver.

To me, at least, it appears that it is not yet distinctly understood how these changeable substances known as sensitizers do sensitize for colors only absorbed by themselves.

Dr. Eder gives a very interesting explanation of this matter and says: All absorbent rays must be divided into four distinct parts:

1. In heat rays.
2. Those producing chemical action.
3. Radiating or fluorescent rays.
4. Those producing phosphoreaum.†

Of all absorbed rays portions only become chemically active, a fact which excludes all distinct directions for the choice of the pigment by means of the optical sensitizer. Such axioms can never lead to satisfactory practical results unless the artist or an experienced printer lends his aid.

Theory may be the pathfinder in the selection of pigments, but will never make us independent of a printer's experienced eye.

O. Hruza, in Wiener Correspondenzen.

HE DIDN'T GO.

LANDLADY to boarder: "Mr. Oldboy, I can't allow any photography to be done in the bedrooms. If you want to develop any more plates you must go out in the garden and do it.

* Alizarin.—*Translator.*

† "Mueller's Physick," 1879.

ADVERTISING DODGES OF PHOTOGRAPHY.

VARIED and curious are the methods and dodges sometimes adopted by the photographic fraternity to attract the attention of desirable clients, and to increase their business. We do not, of course, refer to such outrageous frauds as the free postal portrait business, and similar swindles, which have very rightly been severely punished, but to more legitimate, even if questionable, ways of advertising or attracting attention.

Some time ago in England it became a favorite dodge with many photographers to photograph babies free of charge. The idea being, of course, to win the favor of the mother through the child, and so obtain the custom of the family, and the work of photographing other members of the family. Moreover, only one copy was given to each child, and if it was successful, it was in very rare cases only, that no more copies were ordered.

We call to mind, however, the fate of one unlucky photographer who advertised "Babies taken free of charge" for three days only. Unfortunately for him, he lived in a district very thickly populated by the poorer class, and where babies sprung up like mushrooms. The first day his studio was literally besieged with babies, babies big, babies little, tall babies, short babies, fat babies, lean babies, babies of every description, with their mothers and nurses. According to a stray evening paper reporter, the whole street for miles around was filled with perambulators. Traffic was suspended, as people flocked for miles to see the strange sight. Evening paper reporters are, however, not always to be relied upon, being at times very careless in handling the truth. However, it would appear the photographer found he had rather overdone it in the matter of babies, for before the day was over he had to close his shutters, and in the night he stole far, far away, a sadder and a wiser man.

In the way of catchy advertisements we remember not long ago seeing the following:

PORTRAITS
of the finest quality are
TAKEN
here from 10 a.m. to 6 p.m.
Full particulars and price list
FREE.

The large letters "portraits taken free" naturally arrested the attention of the passer-by, and thus the object of the photographer was gained.

A somewhat similar catch was used by a Parisian

photographer. In his window, among the specimens, he inserted a placard bearing the inscription:

EXHIBITION OF 1889.

LARGE GOLD MEDAL

Refused by a pack of incompetent judges.

The announcement of the medal alone attracted the attention of the passers-by, while the "injustice" of the jury remained unnoticed.

A South London photographer once put up a notice running:

WHAT DO YOU THINK
I WILL
TAKE YOUR PHOTOGRAPH
AND
GIVE YOU A DOZEN
COPIES FOR
NOTHING.

Naturally enough the astounding offer induced numbers of curious people to enter the studio and inquire about its genuineness. "What offer do you mean?" the photographer would reply, with feigned astonishment; "my dear sir, it is evident that you have not read my notice aright. It should read:

WHAT!!! DO YOU THINK I WILL
TAKE YOUR PHOTOGRAPH
AND GIVE YOU A DOZEN COPIES FOR
NOTHING?

Many would, of course, be disgusted at the way they had been swindled, but others would see through the joke, laugh and perhaps being right in the studio think it a good opportunity to be photographed.

A Glasgow photographer was unfortunate enough in having his studio up on the fifth floor. For a long time he had much difficulty in inducing customers to climb up so many stairs, and elevators were unknown. At last he hit upon a plan. A notice stationed out in the street bore the legend:

STUDIO
2d
floor.

Arriving at the second floor the customer was greeted with the legend:

STUDIO
Removed
to
Fourth Floor.

Arriving at the fourth another notice was found bearing the announcement:

During Alterations
STUDIO TEMPORARILY
Removed to
Fifth Floor.

Having arrived so far the majority of customers, it is said, preferred to ascend the last staircase rather than return.

The adoption of high-sounding foreign names has also become rather fashionable among a class of photographers owing to the popular fancy and tendency of Englishmen and Americans to worship any artiste bearing a crack-jaw foreign cognomen. Mr. John Smith, photographer, becomes

MONSIEUR LATROISSETTE,
ARTIST PHOTOGRAPHER,
de Paris.

Only quite recently a gentleman wrote bitterly complaining of such deception on the part of photographers. It appears he entered a photographic studio, the photographer trading under a high-sounding French name, and heralded his recent arrival from Paris. The gentleman's wife was a Frenchwoman, and spoke to him in her native tongue. He looked rather bewildered, and said, "I speak English, madam." But even this he couldn't do, or rather it was with a very strong Irish brogue.

When, however, the photographer is a *bona fide* foreigner he not unfrequently comes to grief over his advertising notices, as did one not long ago when he fixed up a large notice announcing the fact that

CHILDREN
EXECUTED
in the
Shortest Time.

Needless to say, this notice did not prove a desirable attraction with the mothers of children, who naturally objected to leaving their offspring to the tender care of this professed executioner.

Max Madder.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 349.)

PART II.

THE MANIPULATION OF THE PAPER.

CHAPTER II.

PRINTING.

Succcess in silver printing is only attained by practice and attention to details. It is extraordinary what a little care is often bestowed on this part of the process of photography. It is by the finished print that we gauge the photographer's abilities. Of what use is it then to bestow care and attention in making a negative if we are careless in making our prints from it. By careful printing it should

be possible to improve almost every negative. First, a print should be made in the ordinary way, and this should be carefully studied by the printer. He should consider every point with a view to improvement. The clouds printed a shade darker or a little red coloring behind the trees to bring out more detail in the foliage, which prints too dark, etc. In these, and a thousand other ways improvements can be made. To make a good print from a first-class negative is nothing. To produce a good picture from a defective one, is the art of successful printing.

The placing of the negative and the paper in the printing frame is the first operation. This seems an easy thing to do, but it is also an easy matter to break the negative. If the frame is not properly made, or if it has become damp and has warped, if the padding is unequal in thickness, or if a glass be used in the frame, and any dirt find its way between this and the negative, breakage can easily occur.

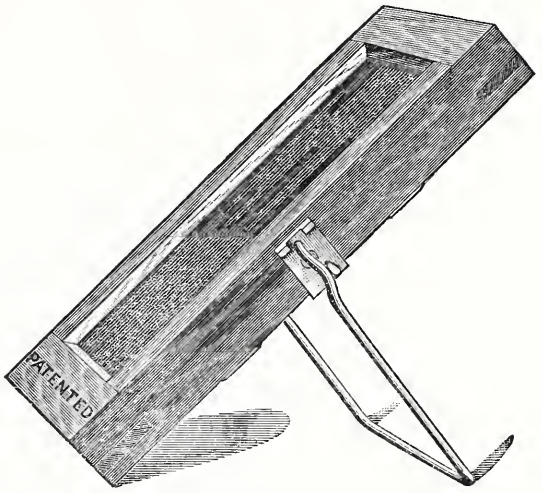
The back of the negative is first cleaned, all superfluous emulsion removed, and then laid in the frame. If the latter be larger than the negative a piece of thick plate glass should be filled in. This should also be quite clean and free from flaws in the shape of air bubbles or bits of dirt clinging to or imbedded in the glass.

All dust is then brushed away from the surface of the negative and a piece of the sensitive paper carefully laid on it. Blotting paper or felt pads are laid over this, and the back of the frame fitted on, when it is ready for exposure. If the pads are at all damp they should be dried before inserting them in the printing frame, otherwise the gelatine will be rendered tacky, and will either stick to the negative or leave silver spots upon it. This leads us to another point, the question of varnishing the negative. We strongly advise the varnishing of all negatives from which a number of prints are required on gelatino-chloride paper, which is so strongly charged with silver nitrate.

As we have already pointed out, the position of the frame in printing depends entirely upon the quality of the negative. In printing from a weak negative it should be placed in a subdued light; for an ordinary negative a good strong light will give the best effect, and for intense negatives strong sunlight is often necessary.

In exposing frames to the light, the only precautions required are, to place them in a safe place, so that a strong gust of wind will not cause any to fall, and also to place them out of the reach of curious meddlers and in a position to avoid any stray rays of light, reflections or shadows.

The frame should be placed at an angle so as to face that part of the sky that gives the most light. For this purpose, the rests shown in Fig. 1 are of great service.



It should be mentioned that the position of the sun is continually changing with the movement of the earth, and it not unfrequently happens that we place our print in a shady place and return after a little while to find the sun blazing on it, or perhaps part of it only.

From time to time we require to examine the print, and whenever possible this should be done away from the strong light. It must be remembered that the paper is considerably more sensitive to light than albumenized, and therefore will not permit of much exposure to the light without the chance of destroying the high-lights of the image. When examining the print, the frame should always be moved to a shady place, until the operator has become so learned by practice that he can judge the progress of the printing operation by a rapid glance. One other precaution we should mention. When lifting one half of the back of the printing-frame in order to examine the picture, it should be made certain that the other half is firmly pressed down.

Printing should be allowed to continue until the print is somewhat darker than required for the finished picture as a little loss takes place in the various operations it has to undergo. Observation and careful study only will guide the operator to a proper knowledge of the right depth of the print required. This will, however, differ according to after treatment to which the print is subjected. For instance, if it is the intention of the amateur to use the plain sulphocyanide toning bath, it will not be necessary to over-print at all, while with many of the other baths a heavy loss takes place, and this must be allowed for at the start.

Then again, the color of the print must be taken into consideration. It will often be found that even when using the same paper we get both purple and

red prints. We have usually found that the shorter the time the print is made in, the bluer the print; for the same reason the thinner the negative, the more the print will tend towards a purple color. This peculiar change must be noted in printing and the fact remembered, that *the bluer the image the greater the loss in toning and fixing*. Red prints lose hardly anything.

It will readily be seen that no rule can be given in such matters as these. The only thing for the amateur printer to do is to draw out for himself a course of operation, and when he has thoroughly mastered these difficulties a mistake rarely arises.

Gelatino-chloride papers print quicker than albumen. This is a decided advantage in dull weather when only a few prints a day can be made. Vignetting, combination printing, or masking, may be effected as with every other paper.

When the prints are removed from the printing-frame they can be toned at once or may be preserved in a light-tight box until a convenient time. Too long a time should not be allowed to elapse, as the toning will be found more difficult, or the whites are liable to be injured.

Walter E. Woodbury.

(*To be continued.*)

THE FATHERS OF PHOTOGRAPHY.

I.—J. H. SCHULTZE.

JOHANN HEINRICH SCHULTZE was born in 1687, at Koblitz, in Germany. In 1717 he became Medicinal Doctor in Halle a/S, and later a professor of Greek and Arabic languages at Altdorf. In 1727 he was engaged in preparing Baldwin's Phosphorous, or luminous stone. This substance consists principally of calcium nitrite, and to obtain it he mixed chalk with nitric acid and added to it silver dissolved in the same acid.

He conducted his experiments in the light of an open window and under the action of bright sun-rays, and soon observed that the thick deposit consisting mainly of calcium nitrite, with probably calcium carbonate in excess, suffered a total change of color in the light. It turned dark, while that part of the mixture in the jar turned from the light, remained white.

After shaking up the bottle, the dark color vanished, or by mixing up with the unaltered portion became imperceptible.

Schultze repeated the experiments in various ways, always with the same results.

The changing of the color of silver and gold salts under certain conditions had been previously known, but the cause of the phenomena was ascribed to the action of the air and heat rays.

Schultze was differently impressed, and the more so after he had found his silver chalk compound to remain unaltered in color after exposing it for hours to the heat of boiling water, but in total darkness, and he thus became the founder of a new theory.

His silver chalk, when exposed to light under designs or figures cut out of black paper, produced perfect fac-similes of the original, indeed the first sun pictures ever made. He furthermore observed that pure silver solution under certain conditions had the same effect, and also that according to the length of light exposure, different color-tones are obtained, first a violet and finally a positive black. He describes and explains all this in an essay presented to the Academia Cæsara Leopoldina-Caralina, entitled "Scatophorous pro phosphoro inventus seu experimentum curiosum de effectu radiorum solarum," 1727.

Schultze's discoveries have been but little noticed by his contemporaries and by later authors, and even Priestley merely speaks of the fact in his "History and present state of discoveries relating to visions and colors," 1775; but he gives priority of discovery to Beccarius, who appeared upon the scientific theatre thirty years later.

Beccarius experimented mainly with chloride of silver. Whether or not he knew of Shultze's experiments is not stated, but it is presumed he did. Evidently he was not the first to ascribe to light the change of color of silver salts.

Had Schultze taken more direct interest in chemical processes, and had he followed up his important observations, he might have met with the same results as did Beccarius, Schech and Senebier some time afterwards.

We owe it to Dr. Eder's indefatigable researches in photographic history to see the name of Schultze placed in the front rank of discoverers. To him alone are we indebted for our knowledge of the light sensitiveness of silver salts.

Photographing a Bishop in Mid-Air.—When the bold Bishop Julius went up to lay the last stone on the spire of Christchurch Cathedral, New Zealand, accompanied by a workman, in a bucket, the hoisting machinery stopped when about three-quarters of the way up. The bishop told his companion not to be afraid, but all the same he betrayed considerable anxiety until the gear again started. The stone was duly fixed, and when they returned to *terra firma* it was explained to them that an amateur photographer, anxious to obtain a snap shot of the bishop while he was ascending heavenwards, had bribed the man in charge of the hoisting machinery to stop while he took the photograph.—*Photography.*



"THE FATHERS OF PHOTOGRAPHY."

1.—DR. J. H. SCHULZE.



INNOCENCE.

STRAY PAPERS FOR BEGINNERS.

The Action of a Lens Simply Explained.

The lens is undoubtedly the most important part of the photographer's outfit. With a makeshift camera the finest photographs have often been produced, but never with a makeshift or inferior lens.

Given a good lens, the next thing is to use it well, and to do that one, should have a thorough knowledge of its action. This I shall endeavor to describe as simply as possible, for the benefit of amateurs and beginners, though I am thinking that there are not a few professionals as well who have but a very elementary idea of the principles of a lens' action.

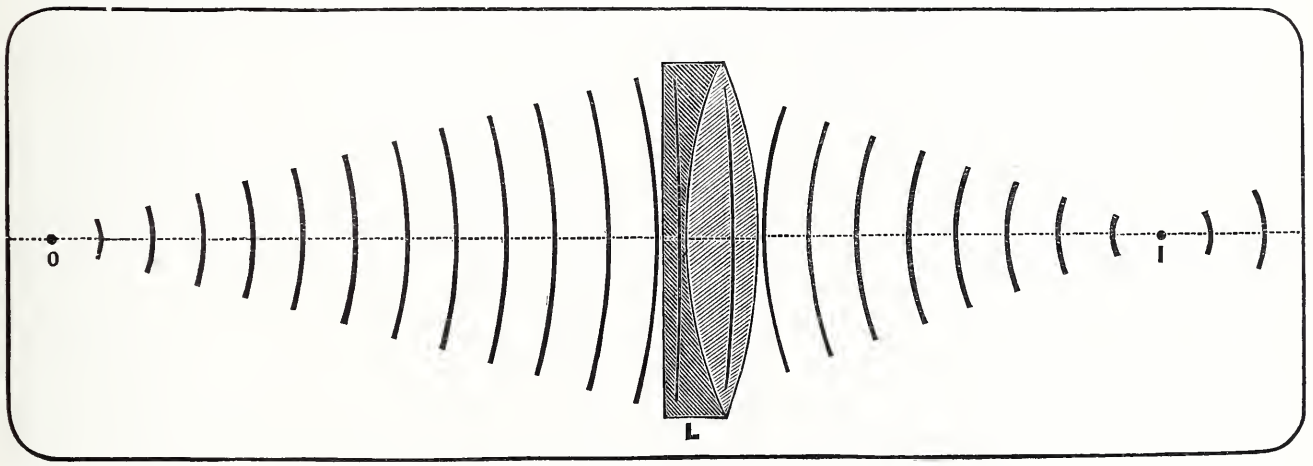


DIAGRAM SHOWING HOW LIGHT IS CONDENSED BY A VIEW LENS.*

First of all we must consider light. What is light? The undulatory theory is the one now generally accepted. This theory assumes the existence of an extremely subtle elastic medium filling all the space of the universe. This is called the luminiferous ether and its undulations constitute light. As sound is transmitted by a wavelike motion of the air, so is light transmitted by the wavelike motions of this luminiferous ether.

These undulations can be better explained by a simple experiment. In a still pond throw a stone. Waves are at once produced in circles or rings all proceeding from the spot where the stone struck the water. These widen out and as they extend become gradually less and less until they finally disappear. In the same manner these waves or undulations of light travel.

There are two principal kinds of light. Light from a luminous body, such as the sun or a candle, and light that is reflected by the surfaces of objects and so cause them to be visible to us. Some surfaces reflect but little of the light, absorbing nearly all and so appear black; others absorb certain rays and reflect others, and the object appears colored according to the rays it reflects.

Waves of light meeting the surface of an object, provided it be to some extent rough, are broken up. Each particle becomes a centre from which waves of light are reflected and spread out in all directions; each point becomes, as it were, the stone in the water, sending out waves of light which reach the eye, where they are brought together again and condensed to a similar point on the retina, and in this way we see the object.

The photographic lens is in many ways similar to the eye. It receives these waves of light, condenses and rearranges them, forming the image upon the focusing screen or the sensitive plate.

Why does the eye or the lens do this? Because of its power of *refraction*. When a ray of light is traveling along in one medium—the air, for instance—it pursues a straight course, but when it reaches a medium of different density, such as water or glass, its path is altered, it is turned aside and made to go a different way—it is refracted. By means of the glass lens we can make it travel in any direction we want.

If you will look at the sketch illustrating this paper, I will endeavor to explain to you how the light coming from the object is made to form an image of that object upon the other side of the lens.

As we have stated, the light reflected from an object proceeds from a number of points. One of these points is O in our sketch, the path of the waves is shown by the curves placed at intervals until it reaches the lens—a simple form of view lens formed by cementing two pieces of glass together,

* For compactness the distance of the object and the size of the lens are utterly out of proportion, but the principle is the same.

these two pieces being of unequal density. If you will examine it carefully you will see that the form of the light wave is changed directly it enters the first part of the lens, the centre parts are retarded more than the outer, and so it is partly flattened out. When it gets to the other side the outer parts get free and go traveling on long before the centre portions, and so the direction of the wave gets reversed, gradually becoming condensed until it again arrives at a point, I, termed the focus. And so it is with all the points from the image, they all travel on independent of each other, all forming their corresponding point on the other side, the whole forming the image upon any suitable substance placed there to receive them. If we have nothing there to receive them they will open out again. It is only at I, that we get a proper image. If we place a surface, say a piece of paper, either before or behind this point, we get a hazy, indistinct image, or as it is called—out of focus.

If you are a discerning individual you will, on again examining the diagram, see that if the lens were made thicker in the centre, that part of the wave would be still more retarded and consequently the wave would be condensed at a point much nearer the lens. If the glasses were of greater density the same result would be effected. It will also strike you that if the object O be situated at a much farther point from the lens, that part of the wave reaching the lens being part of a sphere of greater radius would be very much less curved, so that the reversing action of the lens would produce a far greater reversed curvature and the nearer to the lens the condensed point or focus. If the distance be very great, the wave will be practically flat when it reaches the lens and no further increase in the distance will alter the position of the focus, so that the point to which light from an extreme distance is condensed is termed the *principal focus* and the distance between this point and the centre of the lens is termed its focal length.

We have shown why it is that if the object O is placed at a great distance it comes to a focus at a certain point, I, termed the principal focus, and we have said that if this be brought nearer to the lens the image or focus will be formed farther away on the other side of the lens. For every distance of the object there is a corresponding distance of the image depending upon the focus of the lens. These distances, always the same in relation to each other, are termed the *conjugate foci*. Many tables are published, so that at a glance one can determine where the focus of an object situated at a certain distance will be with a lens of given principal focus.

We now come to the *size of the image*. It is often imagined that the size of the image is dependent upon the size of the lens—that a lens, say, of 12 inches diameter, would give a picture a great deal larger than one only 2 inches in diameter, for instance. Nothing could be more erroneous, however. The relation between the size of the object and the size of the image of it, formed by the lens is dependent entirely upon their respective distances from the optical centre of the lens. Supposing, for instance, that an object is 20 feet away from the centre of the lens and the image 6 inches, then the image is one-fortieth the size of the object. Now, the distance of the image from the lens, we have already explained, depends both on the distance of the object and the focal length of the lens, so that if the object is a certain distance in each case the size of the image is entirely dependent upon the focal length of the lens, and its diameter has nothing to do with it.

Why, then, are some lenses larger than others? you will naturally ask. It is because the brilliancy of the image depends upon the light gathering capacity of the lens which is in proportion to the area of its *working aperture*. The more light that can be gathered by the lens to form the image the more brilliant will that image be, consequently the shorter the exposure required to impress the image on the sensitive film, or in other words the rapidity of the lens. The *rapidity* of a lens depends upon two things, the working aperture and the focal length. What we mean by *working aperture* is that part of the lens that is actually used to obtain the image, that is, the diameter of the opening of the lens, or (in a single lens) the diameter of the stop, if one is used. The rapidity of a lens varies directly as the area of this aperture and inversely as the square of its focal length, for the farther the light is required to travel after it has passed through the lens the weaker it becomes.

The *definition* of a lens is its power of concentrating the rays of light from a point in an object to the corresponding point in the image, or, in other words, to give a *sharp* image. A badly defined image is caused by *aberration*, or the inability of the lens to accurately condense the rays to a point.

The *depth of focus* of a lens is its power of defining objects at different distances. We have explained how objects at different distances cause a corresponding variation in their foci, so that if we place a plane surface, such as the dry-plate or ground-glass at the focus of a distant object, the focus of a nearer one will be behind it, or in other words will give an indistinct image of that object upon the screen, and if we move the screen farther

back into the focus of the near object, the focus of the distant one is in front and a blurred image of that is the result. This power of depth of focus is entirely dependent upon the focus of the lens and its aperture. A short-focus lens has a greater power of defining near and far objects at the same time than a long-focus one. By reducing the working aperture of the lens (by inserting a stop) we get a greater depth of focus, but of course at the expense of the light and consequently rapidity.

We now come to another point, *i. e.*, the flatness of the image or *flatness of field*, as it is termed. The image of a flat surface is never quite flat, but more or less curved from the centre of the lens. To get it sharp all over we should require to throw the image into a more or less curved basin. This quality of a lens is dependent upon the design or curvature of the lens. Many lenses are now made generally with deep curves, and give the nearest possible approach to a flat field.

The *angle of view* of a lens is determined by the relation of its focal length to the measurement of the image which it can best define.

With the *aberrations*, such as *chromatic* and *spherical aberration*, that lenses are sometimes guilty of, we need not deal. It is the duty of the lens maker to eliminate or minimize these defects as much as possible, and our advice, therefore, is to buy lenses only of good makers upon whom one can rely. A cheap and inferior lens will always remain an unsatisfactory possession.

Walter E. Woodbury.

A CAMERA HOLDER FOR CYCLISTS.

A VERY large number of our readers combine the pleasures of photography with those of cycling. The first thing necessary is a convenient method of carrying the camera, and the following description of such an apparatus, by Mr. C. M. Hepworth, the talented son of the well-known lecturer and editor of the *Photographic News*, in which it appeared, will we have no doubt be of very great use.

One of the most important things in the outfit of the cyclist photographer is an efficient luggage carrier to fit on the frame of his machine, in which he can pack his camera, dark slides, focusing cloth, &c. Recognizing this want, I applied for something of the kind to several makers of photographic apparatus with but very partial success. I then tried the cycle manufacturers and dealers in accessories with much the same result. Some suggested strapping the camera to the handle bar, others showed me what they called a spring carrier, which was supposed to kill all vibration, but I saw nothing designed to circumvent the arch-enemy of all travelers by road—I mean the fine, impalpable dust, which is found to pervade everything after even a short journey along a country road; dust which seems to take a delight in creeping into lens mounts, dark slides, and into every other crevice

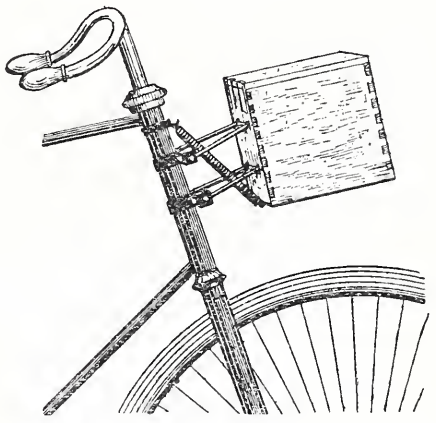


FIG. 1

where it is not wanted. Foiled in the way which I have described, I at last resolved to make a camera carrier according to my own ideas of what one should be like, and I have found it to be so satisfactory in every way, that I do not hesitate to place a description of it before my readers, in the hope that it may furnish an idea upon which they may, if they care to do so, construct something similar. As will be seen on reference to Fig. 1, the apparatus consists of a strong box, supported by means of swinging brackets and springs to the front of the bicycle, the method of hanging it thereon being the same as that usually employed for a lamp. The box is constructed of half-inch mahogany and is seven inches square (outside measurement). This gives me just sufficient space to pack my quarter-plate camera, three double backs, focusing cloth, changing bag, and a dozen extra plates. I will now give some brief directions for making such a carrier, leaving it to my readers to modify the measurements—if necessary—to suit their own requirements.

Cut out, from well-seasoned half-inch mahogany, five squares, each measuring seven inches; these are to form the four sides and the lid (the latter may be put aside for the present). From each end of all of the four remaining squares mark off by a pencil line half an inch to show the depth of the dovetails, and let this line be in a direction at right angles to the grain of the wood. Now mark off the dovetails carefully, and cut with a fine saw, after-

wards scooping out those portions of one piece which are to receive the projecting teeth or tails of the other with a small chisel. After the dovetails have been carefully cut the four sides must be glued together with the very best Scotch glue and screwed up in cramps until dry. Meanwhile the bottom and lid may be cut out—the former being a trifle over six inches square, so as to fit between the sides, and it need not be dovetailed ; the latter

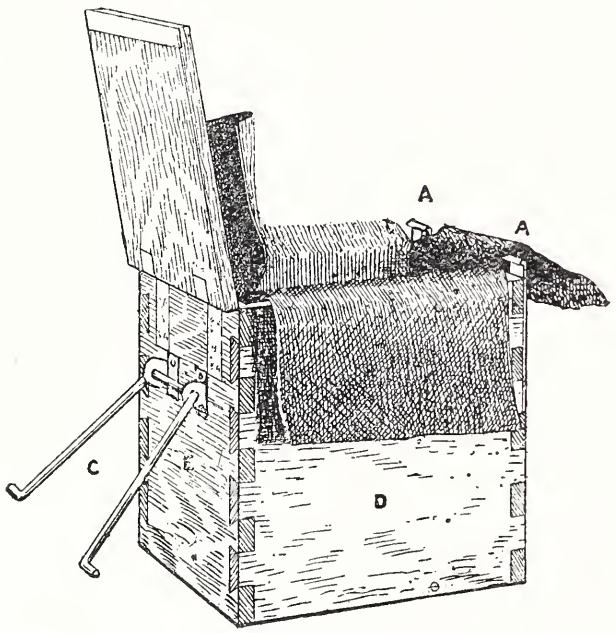


FIG. 2.

must measure seven inches square, and is hinged on, above the sides. The hinges can be obtained in the rough from any camera maker ; they are of the kind made for large dark slides. The shorter arm (Fig. 4, A) must be bent at right angles at three-eighths of an inch from the hinge, then after filing up the edges square, the hinges may be let in flush with the face of the wood. Along the front end of this lid B (Fig. 2) is a strip of half-inch brass, also let in flush, which serves to strengthen the wood, and also forms a sufficient hold for the catches A A. To make these catches, a piece of ribbon brass (of sufficient thickness), half an inch broad, and three and a quarter inches long, is placed upright in the vice, so that a quarter of an inch protrudes above the jaws ; then with gentle taps of a hammer this length is turned over at right angles (B, Fig. 4). This quarter-inch is then reduced to an eighth by filing, and the edge sloped as shown by dotted lines (C, Fig. 4). Two beveled holes in each, drilled near the lower end for screws, complete the catches. They must be sunk into the wood at the edges of the front of the box. The bottom may now be glued in and held in place by two or three screws in each side. The pit for the lower portion of the hinges may be chiseled out and the lid fitted on. To close the box a slight pressure on the lid should be sufficient, the catches flying back into place directly and clasping it firmly. The next thing is to line the box with thick baize, as follows :—Cut a strip of the material twenty-four

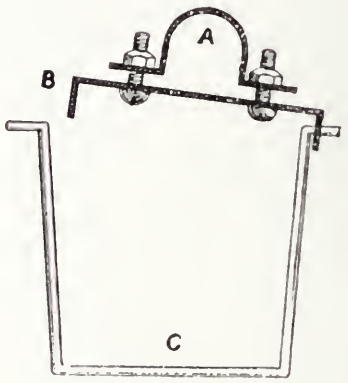


FIG. 3

inches long and eleven inches broad. Roll this piece up, and paint one side of the interior of the box with hot glue. Do not put too much on, or it will soak through the cloth. The roll of baize may now be unwound inside the box, pressing it firmly down, and gluing a fresh portion of the wood as soon as the first piece is covered. Now glue in a square of baize to cover the bottom. The projecting portion of the baize must be slit down at the corners as in Fig. 2. The flaps thus formed are folded over, one above

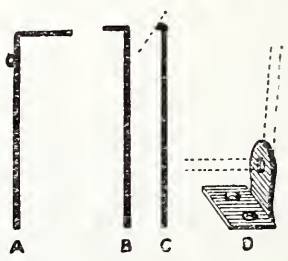


FIG. 4

the other, and help to keep the dust away from the contained camera, &c. But the chief precaution against dust is provided around the top edge of the box. Underneath the lid, a V-shaped groove is cut, into which is fastened, by means of cycle tyre cement, some round catapult elastic, an eighth of an inch thick, so that about a third of the diameter of the india-rubber stands up above the level of the wood. When the lid is forced down upon it, the rubber is squeezed out flat and forms a perfect air-tight and dust-tight barrier.

The next step is to glass-paper the box thoroughly all over, first with coarse paper to bring the brass

work and wood to the same level, and afterwards with a finer paper, preparatory to french-polishing, or, if preferred, sizing and varnishing. The former is, I think, more satisfactory.

After the polish has had time to get hard, or the varnish dry, as the case may be, the work of fixing the box to the cycle may be proceeded with. Bend in the vice two pieces of three-quarter inch brass to the shape shown at A (Fig. 3), and two more to the shape of B. The former to have two holes to receive the bolts as shown, and the latter four holes, two being for the bolts, and two, in the turned-down portions, to receive the ends of the brackets C. The manner of fixing to the cycle is obvious. The brackets are made of hard nickle wire, and are held in place in the brass B (Fig. 3) by virtue of their own springiness. They are fastened to the box by picture-frame suspension plates D (Fig. 4), bent up at right angles—see Fig. 2, where one bracket only is shown—the other is to be fastened in the same manner lower down. A strong spiral spring from the bottom of the box to a hook on the cycle, as shown in Fig. 1, completes the appliance. Its advantages are, that it will carry a camera, double backs, &c., with perfect freedom from vibration and consequent chance of breakage ; that it is dust-proof, and that it can be fixed to, or removed from, the bicycle as easily as a lamp. It will be understood that the portions A B remain as permanent fixtures on the machine.

NOTES ON A FEW LIGHT-SENSITIVE SUBSTANCES.

[Photographisches Archiv.]

As early as 1782 Senebier reported upon the light sensitiveness of bismuth trioxide Bi_2O_3. It turns dark violet in the light. The basic nitrate $Bi(OH_2)NO_3$ behaves similarly, but Wittstein's remarks prove that the nitrate alone is not sensitive, but if spread on paper will turn black.

These properties of bismuth salts have not been very closely investigated, probably because Klapproth and Buch ascribed the sensitiveness of $Bi(OH_2)NO_3$ to the presence of silver and Schneider that of Bi_2O_3 to the same cause.

Some of the bismuth salts I have proved to be decidedly sensitive, and Klapproth's theory is not tenable. Paper impregnated with a solution of bismuth carbonate and then with hydrochloric acid was prepared. Had but a trace of silver chloride found access to the preparation through the bismuth chloride, an excess of other chlorides would have destroyed light-sensitiveness.

Exposed to light, the paper turned brown rapidly. A preliminary application of silver did not increase its sensitiveness.

Well-sized paper coated with bismuth chloride, changes rapidly in light to a brown color. The rapidity of its decomposition equals that of silver chloride, without, however, reaching the depth of tone silver chloride is capable of. The maximum exposure is one quarter of an hour, and the color attained equal to R 206.*

Several salts and acids contribute much towards the increase of sensitiveness and of depth of tone, as sodium oxalate, oxalic acid, the sulphate and the phosphate of sodium. Sugar, gum arabic and the alcoholic solutions of some resins, give still better results. With all these bodies the paper remains a pure white. Carbonate of sodium prevents decomposition and remarkable to say it totally loses sensitiveness by the addition of glycerine. Citric and tartaric acid decrease sensitiveness considerably still more so do alkaline chlorides and bromides.

The color obtained with the above described preparations vanishes again in the dark; the chlorite formed is then returned to the chloric state. The tendency of suboxide of bismuth to combine readily with more oxygen to a higher state of oxidation is well known.

Subchloride of bismuth is not developable either with neutral or alkaline pyrogallol, amidophenol or metol.

With auric chloride which on the exposed portions returns to the metallic state, a vigorous, brilliant, violet-black picture is obtainable.

Of mixtures of bismuth chloride with other photolytes only those with auric chloride and ferric chloride are remarkable. The former is of a faint yellow = R. 221. In direct sunlight it changes rapidly, and in diffused in about a quarter of an hour to a grayish black. The non-exposed mixture is permanent in the dark, and more light-sensitive than chloride of gold paper.

Chromogenes with ferric chloride = R. 66 discolor rapidly and totally on exposure to light.

Rhodan ammonium colors bismuth chloride paper yellow and reddens in the light = R. 219.

Mixtures of chloride of bismuth and bichromate of potassium are not sensitive.

Sulphocyanate of Ammonium or Rhodan Ammonium.

Continuing my experiments with this substance, it has been confirmed that its turning red is not owing to the presence of iron. Paper prepared with potassium ferric oxalate and afterwards with rhodan ammonium assumes a Sienna red color = R. 146, but bleaches out on exposure to light. In half an hour and in the dark the color is restored by oxidation, and after six hours the originally exposed portions have intensified to a much deeper tone = R 145. The light rays here active are about the same as those upon silver salts.

Poitevin employed rhodan potassium with ferric chloride as an indicator in a copying process (Lichtpaus). On the behavior of his prints in the dark he says nothing.

Noticeable are the following compounds and reactions:

Red rhodan ammonium acidulated with citric acid bleaches in the light. The colorless mixture with stannous chloride upon slightly sized paper turns red rapidly, when gum arabic is present light has no effect upon it.

With lead acetate it colors somewhat, and the red compound of gum arabic and rhodan ammonium discolors in the light.

Rhodan ammonium added to ferricyanide of potassium

*The characteristic of color tones is impossible to describe in words; to do so distinctly I have adopted Reich's color tables according to which the mixture of 1 p. of chrome yellow with 1 p. of seiden green is = R 108.

increases sensitiveness (blue) but with a ground of grayish yellow.

Red mangan rhodanide upon paper discolors in light. The flesh-colored = R. 219 mercury rhodanide turns rapidly to a lively red = R. 231.

Graham-Otto, vol. III., p. 1113, says the preparation is decomposed by heat rays as well as light rays when it swells up and assumes a worm-like appearance.

Tungstate.—Ed. Liesegang, Sr., noticed in 1865 that paper first prepared with tungstate of ammonium and then with hydrochloric acid assumes in light a distinctively gray color.

Sodium tungstate on paper does not change in light. The paper is white, but when prepared with the addition of citric acid, and exposed under a negative a light blue print results. Silver nitrate intensifies shade and color to a red brown, nascent silver to black. Chromogenes show no developing power, acetic acid has not the same sensitizing action as citric acid, and compounds of tungstate with sodium oxalate, stannous chloride, rhodan ammonium copper and silver are not sensitive.

R. Ed. Liesegang.

PHOTOGRAPHIC INDUSTRIES.

PHOTOGRAPHIC DRY PLATES.

Whoever can claim the credit of the invention of photographic dry-plates can also lay claim to the laying of the groundwork of one of the most important industries of modern times.

A recent visit to Wuestner's New Eagle Dry Plate works forcibly reminded us of these facts.

Mr. Ed. Wuestner, the genial president of the company, started business in a small way in St. Louis, Mo., about eight years ago. Before three had elapsed, however, the excellence of his productions had become widely known in the profession, and the business increased so rapidly that new premises were speedily erected.

The new works are situated on the outskirts of Jersey City, on the Central R. R. of New Jersey, and are 18 minutes' ride from New York City. The main building of the factory is a structure of 50 x 150 feet, besides numerous out-houses, such as boiler and engine house, machine shop and glass warehouses. The location of the factory is as fine as could be wished for, being right between New York and Newark bays, where the air is always fresh and clear, and free from dust, in fact a more appropriate spot could hardly be found for a dry-plate factory. The works are perfection themselves. In the glass cleaning department the glass is handled and prepared with the most wonderful rapidity, the whole process being done by machinery, by which 1,000 dozen 8 x 10 are being turned out every four hours, ready for final emulsion coating.

"Give us your hand," said Mr. Wuestner, Jr., who kindly volunteered to be our guide, and into the dark unknown we disappeared, but not unknown to our guide, who led us rapidly through turns and passages as if it were broad daylight instead of total darkness. Presently we halted, and as soon as our eyes became accustomed to the ruby light shining we saw the glass plates being coated with the emulsion. The machine that is used for this purpose is a remarkably fine one, being the only one of the kind in existence, and coating and chilling from thirty-six to forty 8 x 10 plates per minute. The machine is only 16 feet long and coats from 6½ x 8½ up to 26 x 42 plates. After the plates are coated and racked, they are placed in the drying rooms, of which there are three, and in which the temperature at atmosphere is interchangeable and can be handled at will. The ventilation in the dark rooms is perfect, and when the plates have gone through their drying process they are *bone dry*. These plates being packed without separators, or anything between them, but simply placed film to film, makes it a necessity that the plates are bone dry before packing, and for this reason the drying process of this factory is the only one of its kind. Years of experience has taught Mr. Wuestner that packing dry plates film to film was the *only* way to pack dry plates if done properly. After the dry plates have been dried they go into the packing rooms, where they are thoroughly examined and cut to the different required sizes, after which they are packed six plates in a wrapper, and two such packages placed in a box and sealed, and then packed in wooden boxes ready for shipment.

Wuestner's regular 40 plates have become very great favorites among the most eminent photographers of the country, simply because of their uniformity, for the professional man wants nothing better than a plate he can place confidence in, knowing that it will always give the same effect under all conditions.

It is perhaps by the introduction of two special plates that Mr. Wuestner has made his name and fame. We refer to the orthochromatic and the Imperal non-halation plates.

We were shown some of the results obtained on the orthochromatic plates as compared with the ordinary ones. The difference is remarkably striking. It is however not only in the photography of paintings or colored drawings that these plates are useful in rendering the correct gradations of color, but in portraiture and landscape work also. For portrait work the false effects produced by yellow spots on the face or golden hair which usually appears black, are avoided, and in landscape work a far superior effect of distance and clouds is obtained.

The latest production of this firm, the Imperial non-halation plate, has already been recognized as one of the successes of the day. It is very difficult to choose a subject where halation will not be produced, and its effects often spoil an otherwise good picture. With these plates, however, no fear need be entertained of ruining the picture from this cause as we have seen some photographs made under the most trying circumstances and absolutely free from halation.

We understand from Mr. Wuestner that the result of many years' experimentation will shortly put upon the market in the shape of a plate of unheard-of rapidity, combining at the same time all the fine qualities of his ordinary 40 plate.

PHOTO-ENGRAVING.

THE best way to thoroughly realize the importance of photography in engraving processes is to pay a visit to any large establishment where photographic blocks are produced for illustrating newspapers, magazines, etc.

Probably the largest establishment of this description is possessed by the Electro-Engraving Company. Situated at the top of an enormous building at the corner of Pearl



Electro Engraving Co., N. Y.

THE OLD MILL.

and Chambers Streets, known as Scott's building, no better position could be found. The light and air are beautifully clear, so that printing and copying must be a pleasure.

Through the kindness of Mr. Brack, we were shown over the entire establishment. Commencing with the artist's room, where a large staff of artists were at work making drawings and sketches, or touching up photographs so as to get the best effects in copying, and such effects are undoubtedly produced, for we were shown the results of several printing blocks that had been made and on comparing them with the original were surprised to find that they were in many instances superior.

The preparation of the printing plates and the printing had an exceptional interest for us. All the very latest machinery is employed. In the copying room the light was exceptionally bright and suitable for the work. Some half dozen or more huge copying cameras were at work. By an ingenious arrangement these were all fitted to large springs to counteract any vibration.

The developing and etching rooms next claimed our attention. Here were a number of developing trays all set rocking by machinery. For line work asphaltum and zinc are used, but for the finer photographic productions albumen and copper plates are employed. For all deep line work the etching is only carried a little way, the block is then placed under an ingenious machine and all the deeper parts quickly engraved. This does away with the possibility of the fine lines crumbling away by the action of the acid working underneath them. Finally we viewed some samples produced by this firm, and were not surprised at their excellence after seeing the well-regulated establishment and the costly machinery employed.

Our illustration, "The Old Mill," is produced from a photo-engraved block turned out at this establishment. We need hardly comment upon its fine qualities; it speaks for itself.

Correspondence.

TO OUR READERS.

Dear Reader: In another column of this paper you will see that we are increasing the number of pages of reading matter, also of the illustrations; that we are offering prize competitions and adding many new features that will make THE PHOTOGRAPHIC TIMES of additional value and interest to you Why are we doing this? We have told you that it is because our support has been much increased and we are therefore able to give you greater value. Now, if this is still further increased, we shall be able to give you still more. *You* can help to increase it, and by so doing you will be doing something good for yourself. How can you do this? you will ask. By helping to increase our circulation. This you can do either by showing or sending this copy of THE PHOTOGRAPHIC TIMES to some friend of yours who you know to be interested in photography; or if you do not care to send away your own copy, send us the address of your friend and we will send him a sample copy. Thanking you in advance,

Yours very truly,

The Editor.

The Humor of It.

THE PHOTOGRAPHER.

WHO rises with the morning sun
And starts for business on a run,
And finds his work is never done?
The photographer!

Who with the times must keep abreast
And all newfangled notions test,
And from the whole, select the best?
The photographer!

Who poses each poor addled pate;
Makes crooked eyes and noses straight;
Or terrible would be his fate?
The photographer!

Who smiles at every little elf,
And works right hard for papa's pelf;
But thinks cuss-words within himself?
The photographer!

Who has patience, like poor Job of old,
When customers find fault and scold,
And will not do as they are told?
The photographer!

Who tired goes to bed at night,
And dreams of pyro, and sulphite,
With chemicals in sorry plight?
The photographer!

When smooth-tongued rascals call so bold
To sell their wares, and want the gold,
Who then, sometimes, gets badly sold?
The photographer!

Who does the stricken mother bless,
When holding with a fond caress
The picture of her darling Bess?
The photographer!

Who after reading these poor rhymes,
Should save up all their extra dimes
To take THE PHOTOGRAPHIC TIMES?
The photographer!

Mrs. R. J. Reese.

MODERN EDUCATION.

SCENE — Photographer's studio. Enter lady with baby.

Lady—"Good morning. I wish to have my child's portrait taken."

Photographer—"Certainly, madam. This is the little man, is it? Coo-koo. Bless um, little tootsee wootsees. Too-ka-love um Kchee!"

Up-to-date Baby—"Mother, will you kindly inform me whether the deplorable condition of this person is due to permanent dementia or spasmodic and intermittent insanity. Kindly proceed, sir, and make as creditable a likeness as lies within your apparently limited capacities.

Notes and News.

How do you like the Convention Number of THE PHOTOGRAPHIC TIMES?

The son of the Emperor of Japan is an ardent amateur photographer.

A Rival to Silver Chloride.—Messrs. Lumière have been making experiments with oxalate of cobalt in the production of positives on paper. They have obtained proofs which are said to be very fine.

The frontispiece portrait of H. R. H. the Princess Eulalia, Infanta of Spain, is the best portrait made of Her Royal Highness while in America. It is the only portrait permitted to be reproduced in any photographic magazine.

Are you a subscriber to THE PHOTOGRAPHIC TIMES? If not, it will pay you to become one at once. If you are, will you not show this copy to some photographic friend who is not a subscriber, and so help along a good work.

Photographer (to operator): This is disgraceful, Mr. Pyro; here am I at the studio first."

Operator (deferentially): Yes, sir; I have always been taught to give preference to my superiors.

Fire.—The premises of Messrs. F. A. Ringler & Co., of Barclay Street, the well-known firm of electrotypers and engravers, were damaged by a fire which broke out on Sunday morning at 1 o'clock. No delay, however, will be caused, and orders will be executed as usual.

Enlarged.—THE PHOTOGRAPHIC TIMES next week will contain sixteen pages of reading matter, or an increase of just one-third, the old number of pages. Read the editorial entitled "Enlarged." "*Vivat, Crescat, Floreat,*" as Chautauquan's say. ("It lives, it grows, it flourishes.")

Our illustration, entitled "Innocence," is from *The Engraver and Printer*. This journal is the leading organ of the printing trades, and deals very largely with photographic process as applied to printing. Those interested in photo-mechanical printing will find much of interest in its pages.

Society Reports.—We shall be very pleased to insert brief reports of societies' meetings and doings if Secretaries will kindly send us the matter immediately the event chronicled has happened. We endeavor to keep THE PHOTOGRAPHIC TIMES up to date with all the latest news only.

It will pay everyone interested in photography to read the advertisements in this number. They are complete and very instructive. Advertisements are by no means the least interesting or instructive part of a well-conducted periodical. Will you not kindly mention our magazine when you write to advertisers?

The Biggest Telescope.—Paris has practically decided that the big thing with which she will amuse the world at the exhibition of 1900 will be the greatest of all telescopes. It will cost at least $500,000, and it is expected to bring the moon near enough to see objects no larger than the steeple of an ordinary church.

Society of Arts Silver Medals.—The Council of the Society of Arts have awarded the Society's Silver Medal to Thomas R. Dallmeyer for his paper on "Tele-photography," and to H. Van Der Weyde, for his paper on "The Pictorial Modification of Photographic Perspective by the use of the Photo-corrector or Visual Lenses in Portraiture and Landscape," read during the Session 1892-93.

Antidote to Cyanide of Potassium.—According to the *Pharmaceutial Era* experiments on guinea pigs have shown that permanganate of potash in solution of the strength of one-third to one-half per cent. is a perfect antidote, transforming the cyanide into cyanate, a substance comparatively innocuous. It is thought that a solution of the above strength in cases of poisoning may be drunk to a dose of one pint.

Mr. Carbutt of dry plate fame has received from the Photo Co. of New Orleans some pictures made upon his Columbian Anti-halation plates under the most trying circumstances. They are of the reception room, the sun showing brightly in the camera, and in two of the views directly toward the camera. Twenty-five seconds was the exposure. We have seen these specimens and they undoubtedly speak well of the non-halation effect of the plates under the most severest conditions.

The largest photograph in the world appears after all to be only a composition affair, but at the same time speaks highly of the skill of the maker. Nineteen 18 x 22 plates were utilized to make a solid negative 15 feet long in a frame about 16 feet. One sheet of paper over 15 feet long was printed, toned, fixed, etc., and the whole print is perfect.

The design of the picture is letters reading "The largest Photo in the World." Posed gracefully in each letter is the figure of a child and in some cases two.

Wilson's Magazine for July is a remarkably fine number and contains a host of good things. In it we notice mention of the firm of Magee & Co., successor to Louis Beckor, the first manufacturer of photographic chemicals in this country. There are many recollections connected with that name; for instance, Louis Beckor was the first to make hypo in this country, in a little laboratory on the site of the Y. M. C. A. Hall, corner of 23d Street and Fourth Avenue. It was first sold for the modest sum of $1.50 per pound.

The Age of Indolenee.—Mr. Rockwood, upon reaching what he claims is the age of indolence (60), a doctrine he preaches but does not practice, tried to reduce his cares by the sale of the Union Square gallery (opposite Tiffany's), which has always been, and still is, a small gold mine. There were no purchasers at the time, so he has refitted and (to prevent confusion of names) rechristened the gallery the "Paris Studio," and started in fresh. This

was a grand opportunity for a good photographer to engage in an established business. As Mr. Rockwood says he is "getting no younger," he will negotiate for its sale. It does a business of from $25,000 to $33,000 a year.

A Congress of the Photographic Society of Great Britain and Affiliated Societies will be held at the time of the Exhibition of the Photographic Society. The Congress will be opened on Tuesday, October 10th, with an evening meeting at the gallery, Pall Mall, when the President will deliver his annual address and present the medals awarded in connection with the exhibition. On October 11th at 3 and 8 P.M., and October 12th at 3 P.M., there will be a meeting at the Theatre of the Society of Arts for the reading and discussion of papers; and on October 12th, at 8 P.M. there will be a special lantern display in the gallery at Pall Mall. Further particulars will be duly announced.

We recently received a visit from Mr. K. Ogawa, joint editor, with Mr. W. K. Burton and publisher of the *Sashin Shimpo* the Japanese *Photographic News*. In conversation with this gentleman we are not a little surprised to hear of the advanced state of photography in Japan. Our old friend W. K. Burton has undoubtedly had a lot to do with this advancement, and they are not forgetting the fact either. A statue is to be erected of our friend. This is one for the Japs. In most countries they wait till a man is dead before showing their appreciation of his services. Mr. Ogawa has taken back a large quantity of the latest Scovill apparatus together with the most recent improvement in printing machinery, for although a professional photographer, he has added a publishing and printing works where phototypes and photo-engravings are made.

The Use of Photography in Painting.—Mr. Yeames, R. A., was treading on dangerous ground the other day when he addressed the students of the Art Training School at South Kensington, and advocated for the educated artist an intelligent use of photography—photography as an aid, not as an essential. Few people know how extensively photography is now used by artists, and often with what steadying results. Some artists, like Mr. Linley Sambourne, proclaim the assistance they derive from photography; others, among themselves, when they are not likely to be misunderstood, admit their employment of it for the purpose of establishing the correctness of a fact, or modifying it, in so far as the painter chooses to accept the cold truth which is sometimes artistically falser than bad drawing. Others, again, employ it largely, and, in spite of the evidence of their work, stoutly deny any use of it. There seems no reason why photography should not be used within certain limits, and fairly, for certain set purposes. But the art-science nowadays seems to make some men's reputation and blast others; for nothing can more cruelly ruin a painter than the setting on foot of a rumor—which most of us have heard—that So-and-So "uses photography."—*M. H. S., in the Westminster Gazette.*

Foreign Dark-rooms.—As many of our readers will shortly be off to foreign lands seeking fresh fields for the camera, the following list of available dark-rooms taken from Liesegang's almanac may be useful this season of the year. *Germany and Austria:*—Baden-Baden: B. Bickel, Langestr. 20; G. Stumpf, Phot., Lichtenthalerstr. 53. Berlin: Romain Talbot, Kaiser-Wilhelmstr. 46. Dresden: C. F. Bernhardt, Palais Gutenburg; E. Kaders, Phot. Manufactur, Altst; Otto Francke, Pragerstr. 28. Flensburg: J. A. Groth, Director der Schlesw.-Holst. Land-Industrie-Lotterie, Carsten-Nirsen-Weg. 10. Frankfurt a. M.: Haake & Albers, Kirchnerstr. 4; Frankfurter Trockenplattenfabr., E. Vom Werth & Co., Friedenstr. 2. Hanover: S. Federlein, Luisenstr. 2. Kiel: M. Bensemer, Apoth., Brunswickerstr. 38. Markersdorf a. d. Böhm. Nordb. (Station Rabstein); Franz Eypert, Weinhaus, Prague: Adolf Fischl, Ferdinandstr. 23. Steinschönau: (Bohm. Nordbahn), Carl Hahnel; Rich. Helzel, Sonnenbergerstr. Stuttgart: Lud. Schaller, Marienstr. 14. Vienna: Oscar Kramer, Graben 7; R. Lechner, Graben 31. Wiesbaden: W. Hammer, Kirchgasse 2a. *Italy:*—Allessandria: Castellani, Corso Roma. Bergamo: A. Tarramelli, Via Torquato Tasso 22. Bologna: Sargato & Belvedere, Via Farina 24. Casale Monferrato: A. Bertolia, Via Garibaldi 6. Florence: Pietro Sbisa, Piazza della Signoria 4; Società fotografica Italiana, Via della Scala 15. Genoa: A. Sotteri, Via Carlo Felice 10; A. Speiche, Solita S. Gerolamo 3; Badino, Portici Vittorio Emanoeli; Carlo Coppo, Via Guilia 43; F. Passadoro, via Ponte Reale 242; Hotel de la Ville (H. Engel). Leghorn: U. Bettini, Via Ricasoli 18. Mailand: Bathista Borghi, Via Angello 17; Pietro Piellavinci, Via Orefici. Naples: Guilio du Besse. Novaro: A. Zenoni, Via Ospedal. Rome: J. Juliana, Via Babuino 147; Pietro Sbisa, Via del Corso 149; Oreste Ducchi, Piazza Nicosia 27. San Remo: J. Scotto, Rue Victor Emanuel 16. Turin: A. Berry, Via Roma 1. Venedig: Gerolamo Mankovain, Optiker.

Photographic Societies.

THE PHOTOGRAPHIC SOCIETY OF JAPAN.

THE annual meeting of the society was held at the Seiyoken, Uyeno, on Saturday, 20th May, at 5 P.M., Prof. D. Kikuchi, M.A., in the chair.

The secretaries had again to report the successful working of the society for a year. There has been a large increase in the number of amateur photographers in the country, and it is pleasant to note the earnestness displayed by those who take to the use of the camera with no view of making a money profit by it. By far the most important event of the year, for the society, has been the opening of the Exhibition that now surrounds us.

The society was in a flourishing condition financially.

Prince K. Saujo, Count J. Omura, Marquis A. Tokugawa, Prince T. Konoye, and many others were elected members.

After this the officers all resigned. It was proposed that the whole of the officers be re-elected. An amendment was proposed to the effect that Mr. W. K. Burton be proposed as the Foreign Secretary. The amendment was duly seconded, put to the vote and carried. The original proposition as amended was then put to the vote and carried.

The proceedings ended with a vote of thanks to the chairman.

After the meeting some forty to fifty members sat down to dinner in the large room of the Seiyoken. Prof. D. Kikuchi, as chairman, proposed success to the society,

and Dr. Divers, as vice-chairman, proposed the health of Mr. G. Henry and Mr. E. A. Hornell, to whose untiring energy for several days was due the excellent way in which the photographs were hung.

Mr. Hornell, in replying, said that, speaking as an artist, he considered the work of Japanese photographers quite up to that shown at the present Exhibition. He said some very bitter things about the exhibition of oil paintings being held next door to that of the photography, as also did Mr. Henry. Various other speeches were made, and after dinner Mr. Milne showed the slides that he was about to exhibit in America on behalf of the Photographic Society of Japan. Taking it all through, the evening was a great success.

The Editorial Table.

La Pratique des Projections par H. Fourtier published by Messrs Gauthier-Villars et Fils, Quai des Grands Augustins, Paris.

This, the second part of this excellent work, contains a description of apparatus, etc., used in the science of projection, together with a number of experiments, etc., that can be performed upon the screen.

We have received from The Blair Camera Co. of Boston, New York, and Chicago a copy of their latest illustrated catalogue and price list of photographic apparatus. Almost every description of photographic appliance is contained therein and a number of novelties for the present season.

Record of Photographic Patents.

500,180. Photographic Printing Apparatus. Richard J. Wynkoop and John M. Kemp, Paterson, N. J.

500,348. Photographic Camera. John J. Parsons, Bristol, England.

Queries and Answers.

89 ADELE has tried to color lantern slides with water-colors, but finds it difficult to distribute and blend them on account of the gelatine swelling on the application of color mixed with water.

89 *Answer.*—Lantern slides are generally painted with oil or lac colors, but our own experiment with Güntur-Wagner's Lazur colors have shown the use of water-colors to be within the range of possibility. They are transparent and do not change tone under calcium or petroleum light. To apply them it is necessary to varnish the slide first with crystalline or Japan varnish, which gives a nice surface to work upon.

Colors and varnish can be had at the store of Scovill & Adams Co.

90 WANT TO KNOW.—Some time ago I read in one of the photographic journals a formula for converting the platinic salt into the platinous. Can you kindly tell how it is done?

90 *Answer.*—PHOTOGRAPHIC TIMES of August 12th, 1892, has:

Platinic chloride (Pt. Cl 4)	1.
Sodium chloride	4.
Sodium bitartrate	1.5
Water	100.

Dissolve the platinic and sodium chloride, heat the solution to boiling point, then add the bitartrate gradually. To tone, dilute with 800 to 1500 of water This solution works well with plain (matt surface) silvered paper.

The action occurring in the preparation of this bath consists in the formation of chloro platinate, which at ebullition is converted by the bitartrate, a reducing agent, into sodium chloro-platinite.

Silver prints toned in this manner, provided they have been properly fixed and washed, are as permanent as the real platinum prints.

91 CURIOUS.—Of what is vici paper composed? I bought some of it, and like it because I had success in printing upon it.

91 *Answer.*—It is like Kallitype paper, not strictly speaking a silver printing paper, but one sensitized with an organic ferric salt, in this case ferric oxalate. By exposing ferric salts to light they are reduced to the ferrous state, and if that is done under a negative, a photographic picture is obtained. The silver present, acts more as a developer than in any other way, and the Rochelle salts of the developer, a great silver reducer, perfects the substitution of silver for iron, so that after all a kallitype is not an iron, but a silver print.

92 L. B. N. wants to know how to mount albumen or aristo prints on canvas.

92 *Answer.*—Soak the canvas—ordinary muslin at 6 or 7 cents a yard will do—in glue water of medium strength. Stretch it upon a frame with keys. When dry and perfectly tight mount upon it the prints pasted with an ordinary mountant. When dry cut down with a sharp knife.

Canvas mounted prints can be burnished very well.

93 F. A. WALKER, Copenhagen.—1. Will you kindly say how to black the inside of tubes, also diaphragms of brass, of the photographic lens?

2. Is the Leucoscope lens of large size suitable for landscape work?

3. In what respect as to its working capacity does the Leucoscope differ from the Morrison group lens?

93 *Answer.*—1. Lampblack mixed with shellac varnish, so much diluted with alcohol that it will dry without gloss will do for the interior of the lens tube.

Diaphgrams may be blackened as follows: Dissolve one ounce of copper carbonate, in half a pound of ammonia solution, constantly stir and add 18 ounces of water. The brass objects are attached to brass or copper wires and plunged in the solution till completely blackened, or plunge the objects in a solution of platinum chloride 1:100.

In either case must the metallic objects be well scoured and be free from oxide, dirt, or any foreign matter.

2. It is not. It is a portrait lens.

3. The Morrison covers a much larger field, has more depth and is therefore better adapted for groups than the Leucoscope.

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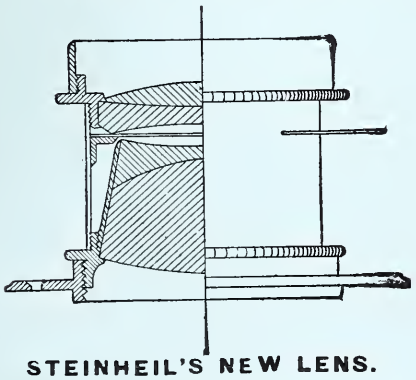
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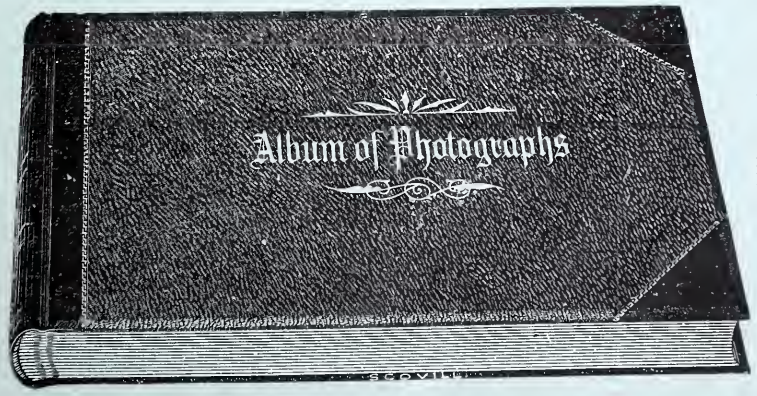
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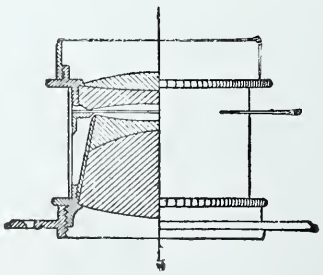
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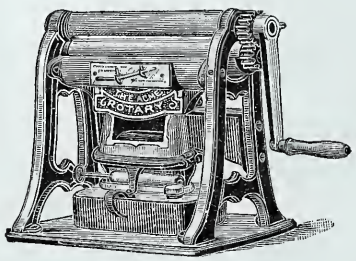
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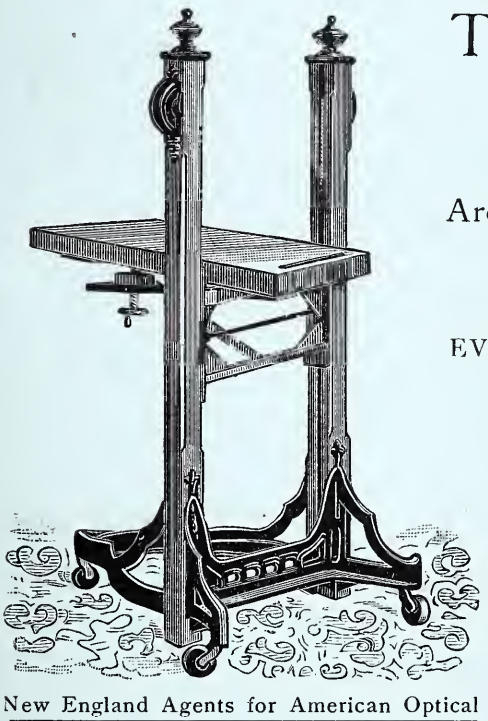
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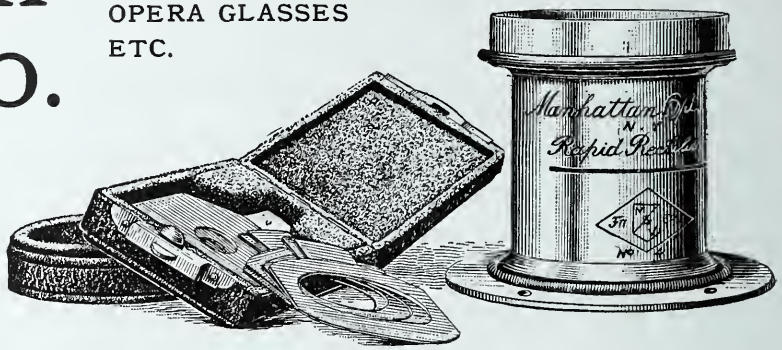
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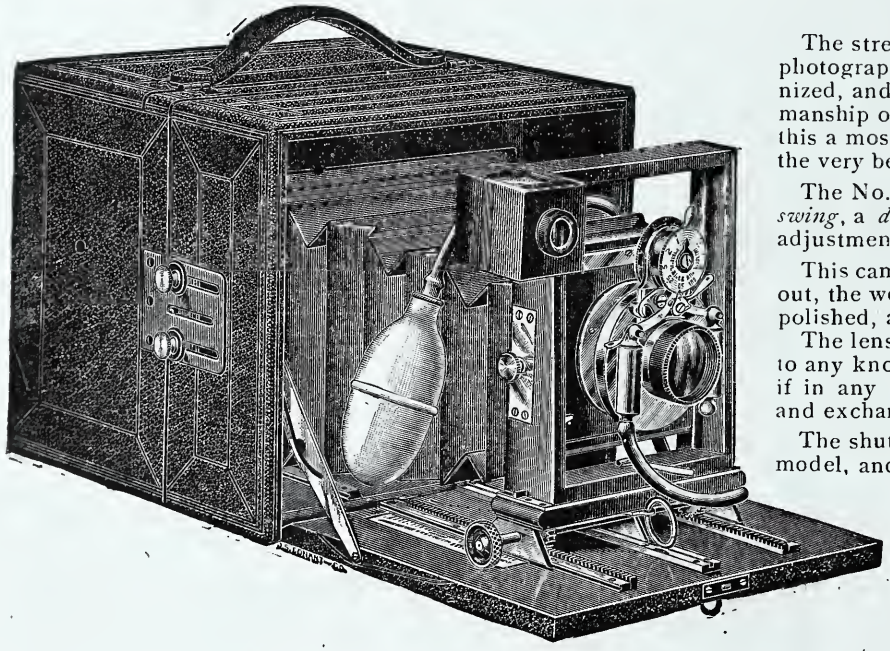
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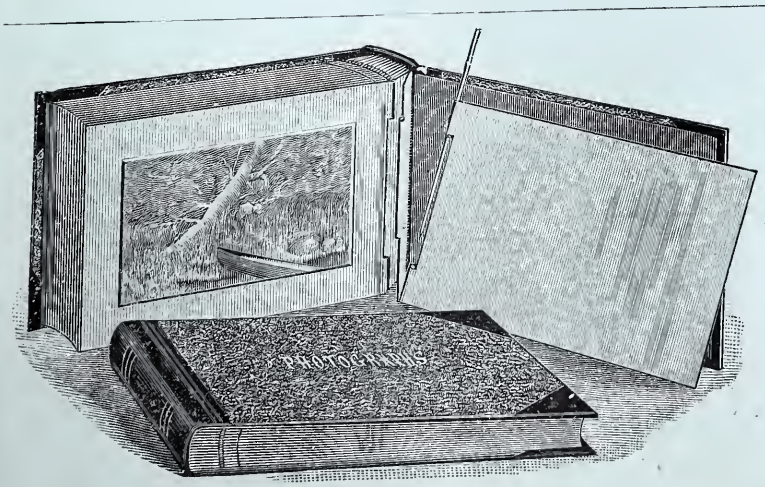
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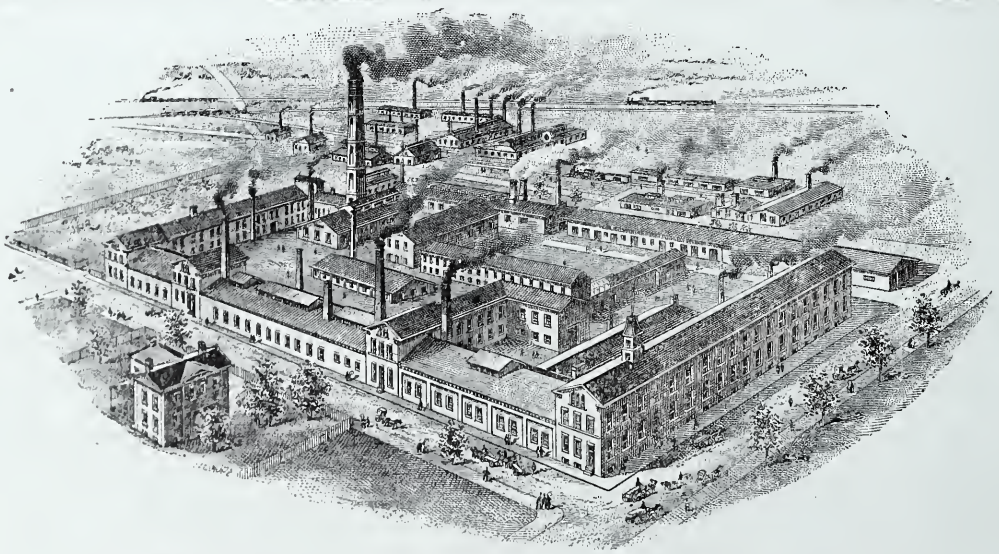
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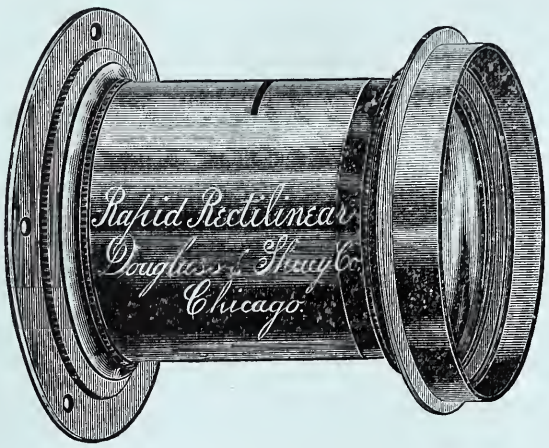
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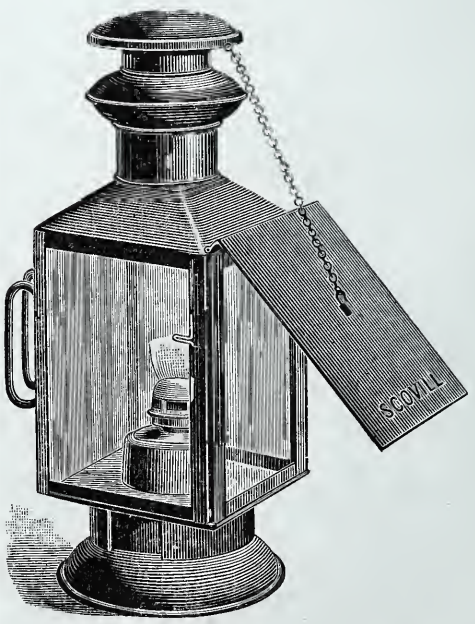
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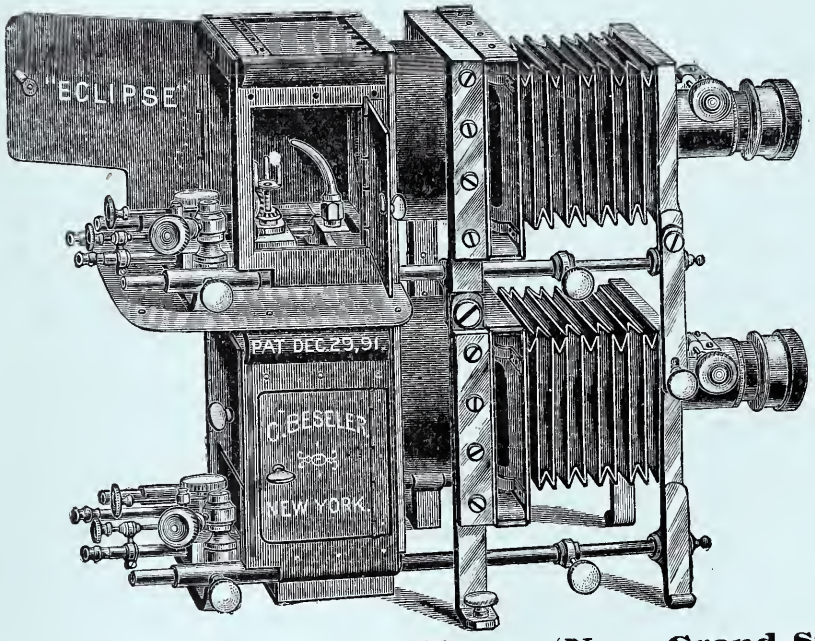
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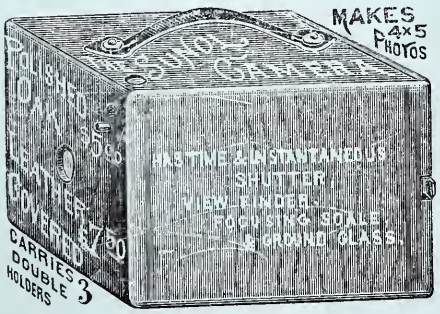
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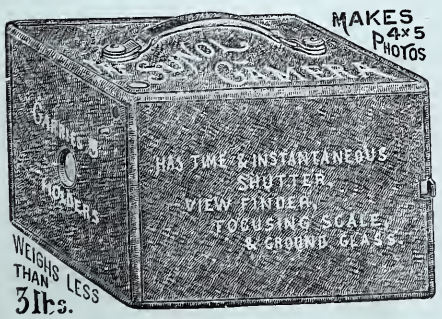
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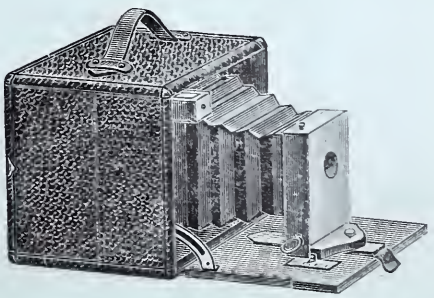
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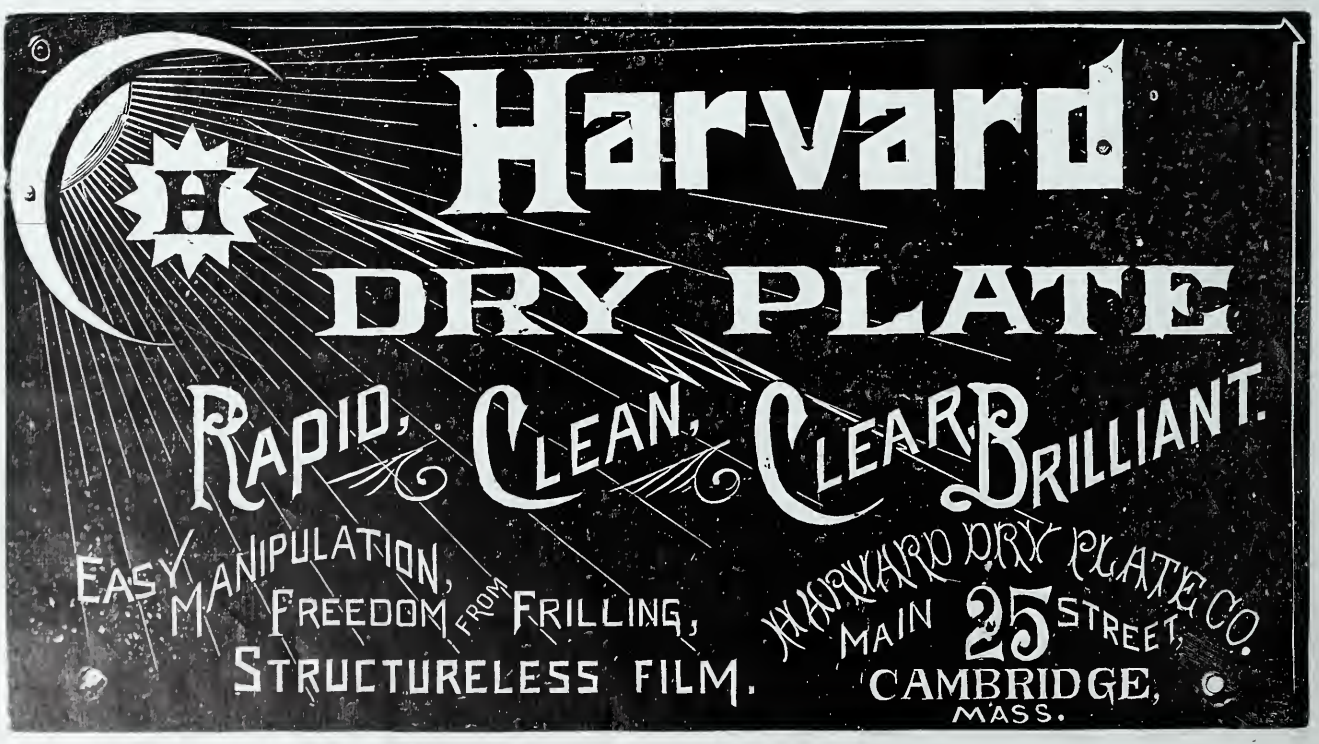
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IN THE MEADOW.

"The river, hemmed with leaning trees, wound through its meadows green."

"THIS picture was taken last September on Woods River in Bloomfield, Conn., near the old mill, the stream here flowing through a most delightful stretch of country. The Mill pond, the stream just below, with its thickly wooded banks, and, later, when it loiters through the meadow, give a great variety of subjects in a comparatively short distance. It is a favorite resort of artists and photographers, though I think all its beauties are not appreciated by the general public. I have a friend, an artist of note, who took a house near by and spent an entire season sketching in this neighborhood." Thus writes Mr. Herbert O. Warner in regard to his own picture. This photograph received the first prize in the Sixth Annual Exhibition of the Camera Club of Hartford, this spring. It was acknowledged to be the "best landscape in the exhibition," and certainly deserved the prize. Mr. Warner is President of the Club, and is one of its staunchest friends. He is a charter member and an active worker. He spends the greater part of every summer in travel, invariably carrying his Scovill camera with him. He uses the Laverne lens and Harvard plate.

TENTATIVE DEVELOPMENT.

BURTON'S article upon tentative development, which appeared in a recent issue of THE PHOTOGRAPHIC TIMES, has apparently attracted more attention in England than in this country. That the matter is of extreme importance no one will deny. A method of regulating the development, in accordance with the state of disturbance of the light-affected molecules, is one of the chief requirements in practical photography. At a meeting of the London and Provincial Photographic Society, Mr. Cowan read a paper upon compensation in development for variations in exposure on the lines suggested by Burton's paper. He experimented in the manner given, but came to the conclusion that the theory that correct exposure is the principal determinary factor in the production of correctly graduated negatives was not in any way shaken.

These and other experiments have, however, proved that abnormal exposures can, by modification of development, be made to give pictorially good results, apparently upsetting the theory of Hurter Driffield that the opacities of the gradations are proportionate to the light intensities. We say apparently only, for we do not believe that such is actually the case; that is to say that two plates, one having an exposure of several times the other, can be made to yield identical results, although they may be both *pictorially* good and the difference only detected by measurements. Dr. Hurter has stated that a range of 3 : 60 cannot be detected by the unaided eye.

We are therefore greatly indebted to Mr. Burton for putting into our hands a new power of compensation with abnormal exposures—that is to say, above the limit of the shortest effective exposure.

While upon this question it would be interesting to know what we must consider to be the least effective limits of exposure. We would imagine that if quantitative measurements were undertaken of the lower limit to the intensity and duration of the actinic power, under which the chemical equilibrium of the light-sensitive compounds remains unaffected, they would yield some interesting data. We know that the light is measured by the square of the amplitude of the ethereal excursions. If chemical attraction were to vary reciprocally with the same factor of the molecular excursions we should imagine that the action of light, if purely dissociative, would be directly proportionate to its intensity. But it is not so. Taking a very much under-exposed negative, we see a hard effect of

black and white, with apparently no gradation between the two extremes. This would lead us to believe that the light must have a certain amount of energy dissipated before the cumulative action of the light pulsations is felt.

EXHIBITION AWARDS.

IT is with pleasure we note the action of English photographers in laying down decisive rules as to judging and awarding medals in exhibitions of photographic pictures.

A revolt against the absurd and decidedly wrong method of judging was inevitable. A medal obtained at a photographic exhibition carried with it no honor. Foolish pride on the part of the recipients probably led them to believe they had accomplished some great deed and worthy of the reward, but sensible persons in no way envied them their possession.

If ten bandy-legged men were to hold a race together, and one, being a little better than the rest, won the race, would he be entitled to a medal as a racer? A similar question may be asked in the case of exhibitions held by the small societies, consisting of a number of poor workers. Those a little above the average get the reward and become medallists. What honor is attached to such a proceeding?

The conference held in England among all those who had acted at any time as a judge was a course decidedly necessary, and the first section of the code now practically agreed upon by the main body has been made public. The rules are as follows:

1. The Judges' decision shall be final.
2. The Judges shall have full power to withhold any award.
3. The Judges shall have power to exclude all persons from the room while judging.
4. The Judges' expenses shall be paid.
5. It shall be stated in the prospectus that the awards are placed "*in the hands of the Judges*," or "*at the discretion of the Judges.*"
6. The Judges shall not adjudicate upon pictures exhibited as produced with wares of special trading firms.
7. Pictures which have previously taken awards at open exhibitions shall be classed by themselves.
8. Each picture of a set which has been collectively medalled shall be considered for competitive purposes to have received an award.
9. An award shall be made to one picture only, except where, from the nature of the subject, the pictures bear an obvious relationship to one another.
10. There shall be no distinction between amateur and professional.
11. No production of any kind whatever from the same negative shall receive more than one award, except as defined in Rule 7. This includes lantern-slides, enlargements, &c.
12. No award shall be made to a lantern-slide until it has been projected on the screen.

Together with the following recommendations:

1. When Judges have to spend the night away on account of distance they should not be lodged at the house of a competitor.
2. The Judges should have power to give extra awards where they may think fit.
3. In order to enhance the value of awards, their number should be limited.
4. The Exhibition Committee should not accept offers of awards from trading firms.
5. The number of classes should be kept as small as possible.
6. No award should take the form of a money prize.
7. No exhibit at the same exhibition should receive more than one award.

When we consider the influential character of those who were present at the framing of these rules, and that they have all signified their intention of only acting at exhibitions where these rules are adhered to, it seems likely that they will be generally adopted in England and, we should like to add, in this country also.

EDITORIAL NOTES.

ELSEWHERE will be found some interesting notes on the World's Fair and Photographic Convention, by our special representatives in Chicago.

LIEUTENANT PEARY has at last started on his adventurous voyage to the North Pole. His ship, "The Falcon," is a strongly built sealing steamer specially chartered for this purpose. Although an artist will accompany the expedition, Lieutenant Peary will take with him a large quantity of photographic apparatus.

DR. NANSEN has also bid goodbye to his friends and well-wishers, and commenced his journey to the Polar Regions. There are few men with a knowledge of the arctic regions who believe that the plucky Doctor will succeed in his endeavors to find the North Pole or even return, for he will estalish no line of retreat. His motto and the name of his vessel is "Forward." He, also, will carry with him photographic appliances, so that in the event of these two explorers returning in safety (which we sincerely hope they will do) we shall have plenty of views and pictures of the northern regions. We cannot say that we envy the photographers their task. Photographing in the open air with the thermometer 30 degrees below zero,

with polar bears and other interesting animals prowling around, cannot be the most pleasant of occupations.

Mr. Worrell, an English chemist, has, it is stated, discovered a hitherto unknown oil, intermediate in properties between the benzine series and its derivatives on the one hand, and the paraffine series on the other. From this he has extracted a substance possessing greater antiseptic properties than the purest carbolic acid. It possesses a further advantage over the latter in being quite harmless, whether taken internally or externally. This substance, which is termed izol, will no doubt be largely employed for gelatine emulsions, paste, etc., where its powerful antiseptic properties can be made use of.

The seventh annual Photographic Convention of the United Kingdom has been held. The president, in giving his summary of the most important events, has left out several that we consider worthy of mention. Van der Weyde's corrector undoubtedly places in the hands of the photographer a power that he has sighed for ever since the earliest days of photography—the ability to pose the sitter without being painfully handicapped by the arbitrary requirements of the lens. Ives's Improvements in his Composite Heliochromic Process are also ignored.

Professor Lainer has been experimenting on the influence on the color of platinotypes exercised by variation of temperature or dilution of the developer. The higher the temperature, the browner the tone; the colder the developer, the blacker the image and the purer the whites. Dilution to one-half tends to sepia tones, particularly noticeable in the shadows. For black tones he recommends the dissolution of three hundred parts of oxalate of potash and ten parts of oxalic acid in one thousand parts of water. For use, heat part of the solution to 50 deg. C. With cold development the shadows are not always deep enough, and the concentrated developer is recommended.

The difficulty of focussing minute objects upon ordinary ground-glass screens is continually felt by the photo-micrographer. Max Toch, in *Der Rundschau*, gives his method of obtaining a much finer screen. He fixes an unexposed dry-plate, washes it thoroughly, immerses it in a solution of chloride of barium, and then, without washing, places it in dilute sulphuric acid. Keeping it constantly on the move, a fine precipitate of barium sulphite is thus produced on the film, which forms a superior medium to receive the light rays than the glass, even when finely ground.

The body of the young man who was killed by lightning a few days ago while crouching under a rock is attracting the attention of scientists. The marks produced by the electric fluid are a labyrinth of pink and scarlet lines resembling the branch of a dead tree or the course of a large river with numerous tributaries as it appears on a map. This effect of lightning is both curious and startling, but the reason why we call attention to them here, is, because it is owing to them entirely, that the absurd stories of photographs by lightning have been circulated. Not long ago a person was killed by lightning beneath a tree, and the news was sent forth to the world that an exact photographic image of the tree was found upon the body. These peculiar vein-like marks, usually radiating from the capulla or nerve centre are due to the oxidation of the iron contained in the blood in the minute capillaries which lie below the cuticle and have not, of course, anything to do with the surrounding objects.

CONVENTION NOTES.

[By our Special Representative.]

President Place increased his large circle of friends by the gracious and fair manner in which he conducted the sessions of the Convention. Mr. Place is not only a good technical photographer, but he is an artist to the finger tips. His artistic feeling is manifested even in his dress; with his long, wavy hair, his loose silk shirt with flowing tie and soft hat, he is very picturesque in appearance.

Too much praise cannot be given Mr. Adam Heimberger for the very able manner in which he performed the difficult duties of Secretary. He made friends, fast and many. He deserved promotion.

Vice-President Stuart was as genial as ever. He is an able officer and would reflect credit on the association in any position he was asked to fill. Why is it he is not made President? But we presume he would not allow his name to be used.

Mrs. Clarke, of the *St. Louis and Canadian Photographer*, was present as usual, and appeared as young and popular as ever. Her magazine, *The Eye, The Amateur Photographer* (represented by the bride, Mrs. Ward, formerly Miss Catharine

Weed Barnes) and The Photographic Times were the only photographic journals represented at the Convention.

It was an Aristotype Convention. There were no cameras shown, not a tripod or studio camera in the hall, and very little apparatus of any kind. There were a few backgrounds, some chairs, and other accessories and aristotypes—aristotypes on gelatine and collodion were in profusion. It was an Aristotype Convention.

Every one went to the World's Fair. Of course, photographers spent some time at the Convention, but it was a significant fact that the biggest attendance was on the afternoon when twenty-five cent admissions prevailed. Photographers naturally preferred the greater attractions of the Columbian Exposition to the Convention. The dues ought to be lowered or the attractions increased.

There were no papers, no discussions, nothing to *instruct* photographers. It was naturally asked, "What are we here for?" We will not say the Convention was a failure. But was it a success? No!

PHOTOGRAPHY AT THE WORLD'S FAIR.

Notes from Our Special Representative in Chicago.

The universal presence of photography was made apparent before we had fairly left the city of New York; for the library car of "The World's Fair Special" (via N. Y. Central and Lake Shore route) has its most attractive volume, perhaps, in "The Sarony Photographic Art Album." At least this book was most frequently consulted. It is a heavily bound album, containing a choice selection of Sarony's best photographs of well-known beauties.

A word of testimony from a satisfied traveller as to the excellence of the service on "The World's Fair Special" of the N. Y. Central R.R. is proper at this time. It leaves New York at 12 o'clock every day, arriving at Chicago exactly at 1 o'clock the following day. (We were two minutes ahead of time!) Nothing could be better than the service on this train. Everything is done for the comfort of the traveller. The vestibule train consists of superb Wagner sleeping cars, a dining car in keeping, a buffet car with smoking room (and bar!), a library consisting of over a hundred well-selected books, and a barber-shop. There are two desks well provided with pens, stamped paper and envelopes, and all the illustrated weeklies (we did not notice The Photographic Times, but it will undoubtedly be added to the list!), and the "Photographic Art Album" already referred to.

As we sped along through the pleasant valleys of central New York we were occasionally impressed with the sign of an ingenious advertiser. "Take a Kodak With You" is advice which the traveller frequently notices on the side of a farm-house or the roof of an old barn. "Blair's Cameras" (as well as "Blair's Pills") are also made immortal (!) by the sign painter's art. The "Scovill," "Waterbury," or "Henry Clay" do not decorate the side of any farm-house or barn, but what more effective advertisement could be had than the following, which appeared in the magazine we were reading:

It's only a Straw but—

Our Photographic Apparatus is used exclusively by the two Official World's Fair Photographers.

Scovill & Adams Co.

Our first view of the World's Fair was from the lake as we approached it on the steamer, and it is the best view. It was late in the afternoon, so that the somewhat subdued light of the sun mellowed and enhanced the picturesque effect of the ideally beautiful white palaces. Words cannot exaggerate the marvellous beauty of these buildings. The combined art of our best architects, landscape gardeners, painters and sculptors has resulted in a triumph the educational value of which, from the art standpoint, cannot be overestimated.

But where are the cameras?

It would seem as if the stringent rules of the management in regard to photographing at the World's Fair had resulted in practically suppressing all photographing, at least from the amateur's standpoint. We observed only *one* camera on the Midway Plaisance Saturday afternoon, when, if ever, it would seem the amateurs, released from business, would be out.

But professional photography is all right at the Fair. Mr. B. W. Kilburn seems omnipresent with his stereoscopic camera. He is to be seen here, there and everywhere with his assistants, always photographing just the views people want to buy, and so is Mr. Arnold. His photographs are from full-size

plates, for the most part (we shall give our readers an example soon), and are always artistic and technically perfect.

With regard to photography at the World's Fair, we must begin by candidly stating that it has not the representation here which its importance justifies. Only a few dealers and manufacturers have displays of their goods, and the exhibition of photographs is still more meagre.

We made a careful examination of what is shown, however, and will briefly describe it for our readers.

The photographic exhibits are in the gallery of the Liberal Arts building, which is the largest building in the grounds and, we believe, in the world, covering, as it does, forty acres of land. Photography is accorded a corner in the United States department and was quickly found. All the exhibits are tastefully arranged and attractively furnished. We can do little more than enumerate at this time and place.

First, we came to the very pleasing show of the Photographic Materials Company, of Rochester. This is the headquarters of the Trokonet, and here were to be seen also attractive pictures from prominent photographers' negatives on P. M. C. bromide paper and Kloro. An excellent portrait of Director-General Davis graces this exhibit.

The Eastman Kodak Company occupy the corner at the other end of the Photographic Row, if such it may be called, and certainly may be proud of their display. "Kodak" and "Solio" are the watchwords here and they are well presented. Magnificent bromide enlargements are a feature of this attractive exhibit.

Of the plate-makers both Cramer and Carbutt have handsome exhibits. In Cramer's headquarters we admired an excellent portrait bust of Gustave himself. Mr. Carbutt shows a negative made on his plate and a positive by its side—both faultless.

In both exhibits are to be seen irreproachable work by eminent photographers on these well-known brands of plates.

Both The Blair Camera Co. and E. & H. T. Anthony & Co. make exhibits of their well-known goods; creditable exhibits in every respect.

James H. Smith & Co. show globe enamelled burnishers and accessories. Queen & Co., ophthalmological instruments; and the Geneva Optical Company "The Alladin" dry-plate magazine camera. Bausch & Lomb Optical Company and The Gundlach Optical Company both make creditable exhibits of their well-known and popular lenses, and Sweet, Wallach & Co. have a very attractive display in their tastefully arranged headquarters.

Now for the photographers. Mr. W. H. Jackson, of Denver, makes a magnificent display of large landscapes, his panorama of Washington City being especially noteworthy. But Mr. Jackson should have a panorama camera made by the American Optical Company, such as Chief Arnold of the Photographic Department uses. Mr. Gutekunst shows what is claimed to be the "largest photograph in the world printed on one piece of paper." It is from seven negatives and is of the '76 (Philadelphia) Centennial.

James Landy, of Cincinnati; Appleton, of Dayton, O.; McMichael, of Buffalo; and Stein, of Milwaukee and Chicago, make exhibits worthy the national fame which they enjoy. So does President Place of the P. A. of A., Pach Bros. of New York, and Secretary Heimberger, also of the P. A. of A. James L. Breese, whom our readers know, shows his artistic carbons; and New York is further represented by Dana and Professor Ehrlich. Steckel, of Los Angeles, makes a creditable display, and so does Willis & Clement and The Platinotype Company, of Philadelphia. There were others who made good exhibits, well worth seeing, but we have mentioned, perhaps, the most *noteworthy*.

We have said that photography at the World's Fair is not represented as freely as its present importance justifies, and this is true so far as the actual photographic exhibits are concerned; but the observer is impressed with the conspicuous use which has been made of photography throughout the entire Exposition. Nearly every exhibit contains photographs of the things exhibited as well as the objects themselves, and many are the photographs of entire exhibits to be seen in the various buildings. In this way photography has asserted its great importance at the present time.

The City of Chicago itself is well worth a visit. We made a round of the dealers in photographic goods one morning, and was much gratified by our cordial reception.

At Sweet, Wallach & Co.'s large establishment on Wabash Avenue, we found a great deal of interest. The place was full of buyers and visitors and presented a very lively appearance.

There are exhibits here of goods from The A. M. Collins Mfg. Co., M. A. Seed Dry Plate Co., G. Cramer Dry Plate Works, E. & H. T. Anthony & Co., The Eastman Kodak Co., The Scovill & Adams Co., and others.

There was great activity, also, at the attractive salesroom of Douglass, Shuey & Co., at 111 State Street. Here we met Professor Todd, of Amherst, the great astronomer, and others of repute in photographic and scientific circles.

Mr. Douglass, himself a scientist, always attracts those of the scientific mind. We had a pleasant chat with Mr. Walmsley, of The Geneva Optical Co., and Mr. N. C. Thayer, the veteran photographic merchant.

Everywhere THE PHOTOGRAPHIC TIMES was to be seen, and we heard only words of praise for the Convention Number.

CHAUTAUQUA LETTERS.

I.

AGAIN in Chautauqua, one of the most lovely and picturesque spots on the earth.

On the 15th of July we opened the practising class of our school for the eighth time. Thanks to Superintendent Dr. W. A. Duncan our schoolrooms were thoroughly repaired and much improved; we could move in without delay, and were enabled to open the class as advertised.

Our modest institution is in a flourishing condition and has become cosmopolitan indeed, for students from all parts of the globe seek instruction in our corresponding classes. We had hardly reported the admission of one from Angola, West Africa, when another from New Zealand joins us. These things make one feel proud, for they are proof we have not labored in vain, but have reached an enviable reputation, notwithstanding the enormous difficulties we have had to contend with in conducting the school.

Another proof of our success is the splendid display of students' work we are again enabled to show to our patrons and Chautauquans generally. We had thought the Exhibition of '92 to be the acme of all that could have ever been expected from our scholars, but we are very agreeably disappointed, for in the present collection we have specimens in platinum on albumen and chloride of silver gelatine paper capable of vieing with any photograph ever exhibited, or even to surpass them. These many specimens have been sent by scholars from all parts of the States, from Canada, from Africa and from China.

In our next letter to THE TIMES we will specially mention some of the exhibits.

We opened school with three students—one who wishes to devote himself strictly to portraiture, another a pure amateur from Tennessee, and a young girl whose parents think photography to be the means of making her learn steady habits. We will try not to disappoint papa and mamma.

At 9 o'clock in the morning we four started out to make first attempts, and, armed with a 5x7 and a 4x5 Waterbury hand-camera and two 4x5 Favorites charged partly with Carbutt orthochromatic and partly with Wuestner's non-halation plates, exposed sixteen plates upon the old familiar but ever-pleasing subjects. But our efforts proved disastrous on this occasion. Our well-developed plates did not stand the temperature of 98 degs. Fahr., the water but a few degrees less; and after placing the negatives upon the drying-rack the films began to run—

> "Wie vom geschmolzen Schnee,
> Ein Baechlein überlauft."

It is hot. Last year about the same time it was severely cold. Temperature and condition of atmosphere change suddenly up here in the mountains, and within a few hours the facilities to photograph successfully may be as one can desire.

The assembly grounds are in unusually fine condition. The system of sewerage lately introduced proves a great benefit to all and improves the sanitary condition of the city in the forest, flagged sidewalks have been laid over a great portion of the grounds, the steep ascent to Vincent Avenue has been graded, the old engine house has been replaced by a handsome castellated structure, resembling the Castle of Stolzenfels.

But the most important and impressive of all is the new amphitheatre. The ravine upon which the old auditorium stood has been scooped out, as it were, enlarging very considerably the whole area, so as to increase the number of seats to about 12,000. Very comfortable benches have been arranged very much in the old style upon cemented floors. The organ has been raised to a more elevated point, and beneath and surrounding it are seats for the choir and orchestra. Below that the spacious speakers' stand or platform. The whole is covered by a concave canopy.

The picture of the amphitheatre as published by the *Chautauqua Herald* and other papers is a reproduction of the architect's drawing, but does not give adequately a correct idea what it looks like. To take a photograph of it, there is but one point, the little hill between the hotel and the Presbyterian house. With my next letter I will

send an exterior and an interior view of the structure, which I propose to reproduce in the magazine for the benefit of your Chautauqua friends.

Chas. Ehrmann,
Instructor.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 390.)

PART II.

The Manipulation of the Paper.

CHAPTER IV.

Toning Formulæ.

The following toning baths have been recommended by practical workers, and in most cases we have ourselves used them and found them to act satisfactorily. It should be mentioned that in working with commercial papers there are many kinds now on the market, all possessing some little difference in their manufacture, so that very often a formula that will suit one will not suit another. It is usually advisable to commence with the baths recommended by the maker. If the tone thus obtained does not suit, then you have here a large selection for trial.

Sulpho-Cyanide Bath, No. 1.

Ammonium sulpho-cyanide.....	30 grains
Gold chloride.....	2½ grains
Water.....	16 ounces

Dissolve the sulpho-cyanide in the water, and add the gold—2½ drachms of stock solution. For this bath the prints must be well washed to avoid uneven toning.

Sulpho-Cyanide Bath, No. 2.

Solution 1.

Ammonium sulpho-cyanide.....	3 drachms
Sodium hyphosulphite.....	5 grains
Water to make.....	20 ounces

Solution 2.

Water (distilled).....	3 ounces
Gold chloride.....	15 grains

For use add about 2½ ounces of the gold solution to No. 1, stirring vigorously the whole time until the mixture is clear, then add from 3 to 6 ounces of water.

Instead of the gold solution recommended, we can use 15 drachms of the stock solution referred to in last Chapter, and 1 ounce of water.

This formula is one recommended by Obernetter for his paper, and nice purple tones can be obtained with it. If a reddish-brown tone is preferred the proportion of sodium hyposulphite should be increased to ten or fifteen grains. This bath may be used many times, it being only necessary to replenish with gold solution when signs of weakness appear.

Mr. W. D. Welford, recommends a strong bicarbonate of soda bath and rapid toning.

He says of this bath:*

"The prints are completely toned in one and a half to two minutes, the tray need not be moved at all, and if six prints are immersed, it takes all the operator's time to keep them going. As fast as he can get them out of the tray he can insert a fresh print. Uneven or partial toning is really one of the strongest points, because, as a matter of fact, unless the prints show a trace of this I get suspicious as to the strength of the bath. I can completely tone half a print first, then the other half, and no dividing line is apparent. A dozen air bubbles or streaks can be left on the print, with the result of a dozen bright red spots upon the otherwise finished print. And yet if these be covered over, and the toning continued, there is no trace whatever when finished.

"The fact is, and here lies the merit of the whole thing, a definite tone being obtained, no amount of immersion in the solution (within reason, of course) will alter that tone, so that in the case of red spots they merely *catch up* to the other part. This is very apparent if a print is attempted to be toned, say, in four sections, as it is impossible to show the four degrees, the second one toning to the level of the first before the third can get a start. As regards over-toning, I have left the prints an hour without any difference between them and those taken out in two minutes beyond a slight flattening or reduction.

"I claim that the bath makes the chloride paper easier and quicker to finish than any other silver paper, and it will even bear favorable comparison with any method of printing and finishing at present in use. The bath is as follows:

Bicarbonate Baths.

Gold chloride.....	4 grains
Bicarbonate of soda..	1½ drachms
Water.....	6 ounces

It will be noticed that, compared with the usual bath, it is exceedingly strong. I claim *that* in conjunction with the use of bicarbonate of soda as the feature of it.

"The prints need washing before toning, a slight rinse afterwards, and final fixing in a weak solution of hypo (say 1 to 6) for about ten minutes. Over-printing is necessary to allow for the

**Photography*, August 25, 1892.

bleaching and reducing action, but the actual tone of the print does not change at any period of the fixing. The print must be judged by looking through to a strong light. As soon as the last trace of red or brown has gone it is finished. For those who prefer a warmer tone and slower action, it is only necessary to double the quantity of water and rock the tray."

Bicarbonate and Acetate Bath.

Water	20 ounces
Sodium acetate	1 ounce
Bicarbonate of soda	40 grains
Gold chloride	15 grains

The above is a favorite bath among many workers with gelatino-chloride of silver printing papers. Its method of preparation is to add the gold and bicarbonate of soda to two ounces of water. This is shaken up occasionally until the mixture is quite colorless.

Walter E. Woodbury.

(*To be continued.*)

THE CHICAGO CONVENTION.

PRESIDENT'S ADDRESS.

Ladies and Gentlemen of the Photographers' Association of America:

I certainly feel honored in presiding over this, our thirteenth convention of Photographers of America, and especially when held in the World's Fair City, the four hundredth anniversary of this great country of ours. We should congratulate ourselves that we are able to be here at this time, not only to mingle with those of our profession, but that we have the privilege of visiting the great white city on the lake, which, I assure you, will be a great pleasure.

On account of this attraction, which no doubt many of you will go to see, I have decided to make our sessions short and to the point, consequently, I shall be brief and take but little of your time.

At the meeting of the Executive Committee in June, 1892, we had in the treasury seven hundred dollars, which was considerably depleted at this time. However, we hope to show a nice balance to our successors in office. We should certainly congratulate ourselves that we have this fine hall to show our goods, and hold our meetings in, and had we not secured it when we did, we would have had to convene in the lake front out in the open air or under a tent. This building could be rented for four times as much this week as we are paying for it.

We have secured very fine prizes. I believe in investing a large amount of our income in prizes. It will create an interest for photographers to compete, to see the walls of our convention halls filled with the productions of photographers from all over this country and others. It sends one home with new life and vigor, to start anew and improve by his or her observations.

As to the question of prices: I shall leave that with you. It has been discussed until it is threadbare, and so are the clothes of some of those that have seen fit to work for nothing and board themselves. I will suggest, however, that if we get these men who make work cheap into our local, state or national associations, it will help them to do better work and help them to get better prices.

A school of photography is what we want, where we can go and learn the different branches of the business and what they do learn, learn it from one who is competent to teach them. I would suggest a school of photography be established in some large city, where practical demonstrations could be taught, the same as a medical school or any other professional institution.

Now, I don't want you to think that I think that this is original with me, for it is not. This question is as hard to solve as prices and has been talked of and tried for years, but, I am sorry to say, with but little success. Let this institution be managed and controlled by the P. A. of A., and I believe it would be, in a short time, self-sustaining.

I have found, during my administration, grievances among a great many members of this association, which I am sorry to see. Let us, from now on, let by-gones be by-gones, and start new and see if we can't improve and make this one of the grandest associations of this country.

In conclusion, let me thank the officers and members of this association for their cordial support, and I shall try and fill the position of President of this association to the best of my ability without prejudice or partiality, and I hope that when we separate from this, our thirteenth convention, that I may have the friendship and esteem of every member of the Photographers' Association of America. (Applause.)

ADDRESS OF WELCOME BY THE REV. DR. THOMAS.

Ladies and Gentlemen: It is not often that one has the privilege of representing the Mayor of our city, but at the last it was found impossible for him to come, and I am here to say a few words for him, and in that sense be nearer than I perhaps ever will be again to the office of Mayor. It is always pleasant to speak a few words of welcome. The attitude of welcoming one another is always most pleasant, for in the midst of life's great business and its attendant attritions and competitions we often appear to face one the other in opposition, almost to be in each other's way. And yet beneath all this there is the general feeling that after all the friendships of life are the things most valued; the real wealth of life is the heart wealth, and we are coming more and more to feel that we are all helpers one of the other, that none of us live to ourselves or die to ourselves, that we are brothers and sisters in the great thought and work of the world.

One of the first indications or steps in the progress from the uncivilized to the civilized conditions of life is the division of labor, and more and more, as society advances, do we find it necessary to divide or parcel out the work of the world. This is so in all lines of labor, in all the lines of learning, and in all the professions. The work of the world is too great for any one man. All the wisest can do is to look down the highway of learning, know something of the great affairs of the world. It is only by specializing these affairs that the greatest results can be achieved. So that it takes the work of all—the work of the farmer, the work of the mechanic, the work of all the business lines of life and all the professions to make possible such an age and such a civilization as that in which we live. And we are all sharers in the results of these multiplied divisions of labor. It is in the summing up, in the bringing of all these together, that we reach the great wealth of our civilization, and it is only natural that these different departments of industry should have their special associations, their special friendships. There are the associations of those who toil upon the seas, the associations of farmers, the associations of mechanics and engineers, the associations of the medical and legal and ministerial professions, and along with these you have your own association of the photographers of our country and of the other countries that in the spirit of friendship have come in to meet and mingle with you. Perhaps there is no one of these arts or professions—for you belong to the world of art and have the profession of artists—no one, probably, has made so much progress as yours. Whilst art and the study and translation of the beautiful are very ancient, your form of art is very recent. It has come within the life-time of many who are present, and it has progressed all the way from the simplest beginnings to its present wonderful perfection. The world of the beautiful is in itself universal, and hence it belongs to artists to be generous. We are in a world of form and of color. These two facts meet us everywhere, from the blade of grass, from the field of wheat, from the forest, from the flowers to the stars, we meet these two facts of form and color, giving us as a result the world of the beautiful, and perhaps no other fact in our world ministers more to the delight, to the happiness and even to the joy of mankind than this fact of the beautiful. And it is for this reason that your profession is so generally esteemed, so well liked. Whilst you have, of course, to have a remuneration for your study and for your work, I think it is always felt that the artists, the photographers, in preserving the expression of the passing generation, in putting into these picture-forms of beauty, little children and youth, brothers and sisters, husbands and wives, preserving the gentle face and features of the aged, are always giving the world more than they receive. It would be an inestimable loss to our world now if photography were not, or if it should cease to be. Men of my age can remember the time when a picture was something very rare, when in our school-books there were only a few such simple pictures as Time with the scythe cutting down the great and the small, and the boy and the apple tree, with the man throwing tufts of sod to bring him down, now and then the picture of a cat or of



From the Engraver and Printer.

A HOT SUMMER DAY'S ENJOYMENT.

a dog. Now we are in an age that is addressed to the eye; we are in an age of the beautiful, we are in the age of illustrated literature; we are being taught every day by pictures in the newspapers, pictures in books; and there is no home so poor but you will find some form of pictures upon the wall, and scarcely a family in the country but has the likeness of one or more of that family, and hardly one who has lived in the last twenty or thirty years sleeps in our silent cemeteries but there is preserved to those dear to that one gone the expression of the face that is remembered.

Hence, I say the public generally have not only a feeling of warm appreciation but of genuine friendliness for the photographers of our country. And then it should be added that you always try to take us at our best. And there is a great deal in emphasizing the best in the generous appreciation of what there is of beauty of form, of expression in that most wonderful of all creations, the human face, and you have acquired the wonderful art of making many of us look better in the picture than we do in natural life, and we all appreciate that. Many a one, looking at his picture instead of the mirror feels grateful to the artist.

And now, dear friends, it is my privilege, and from my heart I welcome you. I welcome you to the friendships of our great city, I welcome you to all its great earnest life, and I rejoice with you that in coming thus together you will find great improvement. You have the benefit of comparison, the comparisons of your art as represented in the different countries, and it is wonderful that in your convention you represent not only the east and the west and the north and the south of this land lying between the two oceans, but you have here with you in your fraternal gatherings, a representation from Honolulu; you have with you the artists of England, one upon this stand, of France, of Germany. And do we not all see that this wonderful year of your convention and of the World's Fair is bringing the world together, making us realize the fact that we are brothers, that we need each other's help, that we are adding to the commonwealth of life?

And so, dear friends, in behalf of our Mayor and our city, I welcome you, and I assure you of another thing: I know personally, for I have lived here twenty-four years, many photographers of the city, and I know that you have come to be the guests of a noble, generous class of men and women. I thank you for your present attention.

TREASURER'S REPORT.

GEORGE M. CARLISLE IN ACCOUNT WITH THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

1891.	Dr.
Jan. 1.—Cash on deposit	$2,328.22
Received from:	
W. A. Davis (floor space)	2,472.81
294 members, $2 each	588.00
192 members, $5 each	960.00
214 public admissions at 25 cents each	53.50
Sale of 11 buttons	2.75
Interest on deposits	76.20
Edward Hawley	50.00
W. M. Knight	20.00
	$6,551.48

	Cr.
Paid drafts January 22, 1891:	
No. 1.—G. A. Hastings, Ex. Com. expense	$40.79
No. 2.—W. A. Davis, Ex. Com. expense	35.65
No. 3.—G. M. Carlisle, Ex. Com. expense	44.15
Paid draft February 3, 1891:	
No. 4.—W. G. Stuber, Ex. Com. expense	53.00
Paid draft February 19, 1891:	
No. 5.—J. P. Wright, printing receipts	5.00
Paid drafts February 26, 1891:	
No. 6.—F. Getekunst certificates	21.00
No. 7.—S. L. Stine, Ex. Com. expense	46.76
Paid draft June 5, 1891:	
No. 8.—W. A Davis, printing and postage	83.51
Paid drafts July 17, 1891:	
No. 9.—W. E. Carson, Stenographer	125.00
No. 10.—G. H. Hastings, rents and help	400.00
Paid drafts July 18, 1891:	
No. 11.—W. A. Davis, on account Com	100.00
No. 12.—S. L. Stine, expense account	72.55
No. 13.—S. L. Stine, expense account	21.33
No. 14.—W. G. Stuber, expense account	74.75
No. 15.—W. G. Stuber, expense account	13.90
No. 16.—Torsh & Lee	14.25
No. 17.—Tiffany & Co., bronze	170.00
No. 18.—W. A. Davis, expense account	68.75
No. 19.—G. H. Hastings, expense account	78 40
No. 20.—G. H. Hastings, expense account	97.98
No. 21.—G. H. Hastings, expense account	89.25
No. 22.—W. A. Davis, on account Com	200.00
No. 23.—G. M. Carlisle, expense account	61.95
No. 24.—G. H. Hastings, expense account	167.50
No. 25.—S. L. Stine, help to pack	7.95
Paid drafts August 7, 1891:	
No. 26.—J. Scott Hartley	2,000.00
No. 27.—J. P. Wright, printing and stationery	4.50
Paid draft December 1, 1891:	
No. 28.—W. A. Davis, expense account	35.41
Paid drafts December 28, 1891:	
No. 29.—W. A. Davis, bal. of Com	122.32
No. 30.—G. M. Carlisle, ten per cent. receipts	422.32
Paid drafts December 31, 1891:	
No. 31.—J. Scott Hartley, bal. on memorial	518.00
No. 32.—G. H. Hastings, bal. on medals	608.00
Postage and express for the year	9.20
	$5,813.17
Balance to new account	738.31
	$6,551.48

RECAPITULATION.

1891.	
Total receipts	$4,223.26
Total expenditures	3,295.17
Net gain, 1891	$928.09
Cash in bank, January 1, 1891	2,328.22
	$3,256.31
Paid J. Scott Hartley	2,518.00
	$738.31

A NEW DEVELOPER FOR GELATINE DRY PLATES.

(*Continued from page* 394.)

The best experimental results were obtained with the tartrate and the metabisulphite of silver. Sulphite of silver, produced by precipitating nitrate of silver by its equivalent weight of sulphite of soda, is but little soluble in water, and is easily washed. The precipitate readily dissolved in a strong solution of sulphite of soda, but when combined with gelatine is less sensitive to electro lytic action than the tartrate. An impure double sulphite of silver and soda can be readily prepared by the addition of a solution of nitrate of silver to a saturated solution of sulphite of soda, as long as the precipitate formed dissolves on stirring. The nitrate of soda produced by this reaction, if not removed, seems to have a restraining action when the developer is prepared with hydroquinone. As pyro is not as strongly influenced by the presence of nitrates, it may be found practicable to prepare the silver salt in this manner in developers in which pyrogallic acid is the reducing agent.

In like manner, ammonia may be used in argentic emulsions with pyro, though the addition of ammonia to a hydroquinone developer instantly arrests all reducing action.

Developer No. 1.

Formula.

A.

Argentic emulsion (prepared with silver tartrate)	5 ounces
Metabisulphite of soda	120 grains

B.

Eikonogen	200 grains
Hydroquinone	100 grains
Metabisulphite of soda	120 grains
Distilled water, hot	4 ounces
Pure glycerine	1 ounce

C.

Carbonate of potash	144 grains

D.

Caustic potash	270 to 300 grains
Distilled water, hot	¾ ounce

E.

Bromide of potash	72 grains

Solution A is prepared by warming the argentic emulsion gently on a water bath in a glass or porcelain vessel of a capacity of about 16 ounces. The metabisulphite of soda is stirred in dry immediately before incorporation with B.

The eikonogen, hydroquinone, and metabisulphite (B) are mixed together dry, the water, heated nearly to the boiling point, is mingled with the glycerine and poured over the mass, which immediately dissolves, if rapidly stirred, forming a clear golden yellow solution.

The incorporation of A and B requires careful manipulation to avoid the precipitation of the gelatine or the reduction of the silver salt. These solutions are mixed at a temperature of 110 degs. to 140 degs. Fahr., a few drops of B are added to A, with rapid stirring continued for several minutes, until the emulsion, which at first darkened, becomes of a lighter shade. The remainder of B is then poured gradually, a little at a time, into solution A, stirring constantly.

The emulsion should show but little change in color; it is at once neutralized by C, mixed dry. Carbonic acid is evolved, the emulsion changes to a dark drab color, and some gelatine separates as a dark colored precipitate. D is then added in successive portions, the color of the emulsion changes to yellowish olive, and the precipitated gelatine redissolves. The amount of caustic potash required varies with the purity of the chemicals, and with any change in the formula. It is best to add to each ounce of the developer from 2 to 4 grains of caustic potase in excess of the quantity required to dissolve the precipitate.

Care should be taken to determine the least amount that will form a permanent emulsion. If the proportion of potassium hydrate is too great, the combined silver and geletine are precipitated.

E is dissolved in the emulsion, and produces no apparent change in its appearance. Water is added sufficient to make the volume 12 ounces. The developer is bottled and cooled in a stream of water, with frequent shaking.

Thus prepared, this developer is permanent, and but little affected by a moderate exposure to daylight. It is kept in bottles of dark-colored glass, wrapped in paper.

The density and color of the resulting negatives are much affected by the relative proportion of eikonogen and hydroquinone in the above formula. In the proportions given, of two parts eikonogen to one part hydroquinone, the negatives produced are brilliant black in the high lights, and of extreme density. With 240 grains of eikonogen and 80 grains hydroquinone, a ratio of three to one, the negatives are gray black, with relatively less density, but with extreme detail.

Composition per Ounce of Developer No. 1.

Eikonogen	16.7 grains
Hydroquinone	8.3 grains
Gelatine	3.5 grains
Sulphites of soda	48. grains
Carbonate of potash	12. grains
Caustic potash	25. grains
Bromide of potassium	6. grains
Tartrate of silver	4.8 grains = 1 per cent.
Glycerine	1.5 drachms = 19 per cent.

It should be noted that the object of using metabisulphite of soda in the above formula is to make the solutions A and B acid when incorporated, in order to diminish the reducing action of the eikonogen and hydroquinone upon the silver salt. It is more difficult to combine these solutions when alkaline; not infrequently metallic silver, is precipitated. By careful manipulation, however, an equivalent quantity of neutral sulphite of soda may be substituted for the metabisulphite.

Carbonate of potash is employed to neutralize the metabisulphite of soda; it also greatly diminishes the action of potassium hydrate upon the gelatine film, preventing, at a temperature not exceeding 60 degs. Fahr., the frilling or cutting of the edges of the film by the caustic alkali.

Bromide of potash, in the presence of the great excess of alkaline salts in this developer, keeps the shadows clear and transparent, even with prolonged development. It has no restraining action, but, in the proportion of 5 to 8 grains per ounce of developer, appears to act rather as an accelerator.

This developer is adjusted by a trial development upon an extreme under-timed plate. The picture should appear in twenty-five to thirty seconds; if longer, 2 to 3 grains of caustic potash and 1 or 2 grains of bromide of

potassium are added to each ounce, to accelerate the action.

There are evidences that this emulsion undergoes ripening if kept in a warm place, or if heated to a temperature of 130 degs. to 160 degs. Fahr., for some hours; the effect of this ripening remains to be investigated; in some experiments a gray precipitate of silver bromide formed, and the electrolytic sensitiveness of the developer was increased.

The objections to the above developer are the complicated formula and the large amount of the caustic alkali used, necessitating development at a low temperature, not exceeding 60 degs. Fahr., to avoid cutting the film. It also requires, to form a permanent emulsion, careful manipulation in compounding, and is much affected by any change in the purity of the chemicals used.

(To be continued.)

CONGRESS OF PHOTOGRAPHERS.

PROGRAMME.

Monday, July 31, 1893, *Evening Session*, 8 *P.M.*

1. Address of Welcome, by Hon. C. C. Bonney, President of the World's Congress Auxiliary.
2. Responses by Delegates.
3. Introductory Address, by Walter Cranston Larned.

Tuesday, August 1, 1893.

1. Introductory Address, by James B. Bradwell.
2. "Color Photography," by Fred E. Ives, Philadelphia, Pa.
3. "Isochromatic Photography," by G. Cramer, St. Louis, Mo.
4. "Orthochromatic Photography and its Practical Application," by John Carbutt, Philadelphia, Pa.
5. "Orthochromatic Photography and the Artistic Tendency of 'Platindruck' in Photography," Charles Scolik, Vienna, Austria.
6. "Photography in Natural Colors," Edward Bierstadt, New York.
7. "The Present and Future Possibilities of Photography," W. I. Lincoln Adams, New York.
8. "The Present and Future Possibilities of Photography," Léon Vidal, Paris, France.
9. "Winter Photography in the Alps," Elizabeth Main, Switzerland.

Subject not named, Jno. Nichol, Ph.D., Tioga Centre, N. Y.

Wednesday, August 2, 1893.

1. "Amateur Photography," Catherine Weed Barnes, Albany, N. Y.
2. "Photographers' Efforts at Union," H. Snowden Ward, London, England.
3. "Electric Lighting in Studio," Henry van der Weyde, London, England.
4. "Portraiture," Shapoor N. Bhedwar, Bombay, India.
5. "Astro-Photography," Prof. E. E. Barnard, Lick Observatory.
6. "Posing and Illumination," E. Estabrooke, New York.
7. "The American Bibliography of Photography," C. W. Canfield, New York.
8. "Photography Applied to Scientific Research," Prof. Romyn Hitchcock, Smithsonian Institute, Washington, D.C.
9. "The Finer Division of the Silver Haloids for Scientific Work," Thomas W. Smillie, of the Smithsonian Institute, Washington, D.C.
10. "The Hand Camera, its Aims and Objects," Walter D. Welford, London, England.

Subject not named, Adelaide Skeel, Newburgh, N. Y.

11. "Film in Relation to Amateur Photography," by Gustave D. Milburn, Rochester, N. Y.

Subject not named, Mrs. Elizabeth F. Wade, Buffalo, N. Y.

12. "Photography in Anthropological Work," Prof. F. Starr, University of Chicago.

Evening.

13. "Shutter Photography," Prof. N. Gray Bartlett, Chicago, Ill.

Thursday, August 3, 1893.

1. "America's Share in the Development of Photography," Julius F. Sachse, Editor of *American Journal of Photography*, Philadelphia, Pa.
2. "Carbon Printing," W. A. Cooper, Chicago, Ill.
3. "Fine Line Screens and Their Use," M. Wolfe, Dayton, Ohio.
4. "Photo-Mechanical Processes in England," W. T. Wilkinson, Manchester, England.
5. "Photogravure," Ernest Edwards, New York.
6. "Subject Relating to Photo-Mechanical Processes," Prof. Jacob Husnik, Prague, Austria.
7. "Support Reflection; its Sources, its Effects, its Remedies," I. T. Sandell, Thornton Heath, England.
8. "Tele-Photography," Edward Bausch, Rochester, N. Y.
9. "Focometry Applied to a Particular Type of Lens-System," Thomas R. Dallmeyer, London, England.
10. "Photography as an Aid to Education," Prof. Charles F. Himes, Dickinson College Carlisle, Pa.
11. "Recent Improvements in Photographic Lenses," Prof. W. K. Burton, Tokyo, Japan.

Thursday Evening.

12. "The Camera and the Pulpit," Rev. A. W. Patton, D.D., Joliet, Ill.

Friday, August 4, 1893.

1. "Coarse Grained Negatives and How to Prevent Them," M. A. Seed, St. Louis, Mo.
2. "Medical Photography," Ellerslie Wallace, M.D., Philadelphia.
3. "Photography in Surgery," Mrs. G. F. Sears, M.D., Chicago, Ill.
4. "The Sensitiveness of Photographic Plates," Prof. G. W. Hough, Chicago, Ill.
5. "Photo-Micrography," H. G. Piffard, M.D., New York.
6. "The Services of Photography to Medicine," Andrew Pringle, London, England.
7. "Negatives for Lantern-Slides and Enlargements," F. A. Bridge, Hon. Sec. and Treas. Photographic Club, London, England.
8. "Marine Photography," Henry G. Peabody, Boston, Mass.

Subject not named, L. H. Davies, Johannesburg, Africa.

9. "Photography for Illustrating the Practice of Medicine and Surgery in a Great Hospital," O. G. Mason, Bellevue Hospital, New York City.
10. "Photography as an Aid to Medicine," Prof. Albert Londe, Paris, France.

11. "Photography as Applied to Surgery," Prof. A. S. Murray, Johns Hopkins Hospital, Baltimore, Md.

12. "Landscape Photography," W. H. Jackson, Denver, Col.

Saturday, August 5, 1893.

1. "The Desirability of an International Bureau Established (1) to Record, (2) to Exchange Photographic Negatives and Prints," W. Jerome Harrison, London, England.

2. "Photography Without Objective by Means of a Little Aperture," Capt. R. Collson.

3. "Photographic Optics," Dr. Adolph Miethe.

4. Subject not named, W. M. Giffard, Honolulu, H. I.

5. "Universal Standards in Photographic Apparatus," H. Sturmey, London, England.

PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

THE seventh annual Photographic Convention of the United Kingdom was inaugurated at Plymouth on Monday evening, when the Mayor held a reception in the Athenæum, and the President, Mr. George Mason, of Glasgow, delivered his address.

PRESIDENT'S ADDRESS.

At the Bath Photographic Convention meeting, Mr. Traill Taylor said that, up to that point in the history of the Convention, the presidential chair had been filled consecutively by representatives of the following departments of the art-science, viz., the literary, the scientific, the chemical, the professional, and last year the chair was most ably filled by Mr. Davison, who might, with every confidence, be termed the artistic. And now come we this year to what is known as the commercial element, for you all know that the commerce of photography is what fills up the most of my time and study, and in this phase of the art-science I am most at home. The commerce of photography may seem at first sight the most commonplace and least attractive of all its various branches; but this is not so, for more or less it embraces all, and it will be found to be the most essential element in the whole; it is the leaven that leaveneth the whole lump. Only in so far as any profession is found to be for the general good, so is it essential, and by its claims proving good or bad so will it succeed or fail. All our introductions, experiments, discoveries, and inventions—and their name is legion—are but means to an end, and the end is commercial.

I fancy I can hear the enthusiast exclaim, "Oh, no, that is not so. The glory of discovery is the reward. The love of the work is ample repayment." That's all very well, and I believe that he who says so has perfect confidence in his statement. Yet, "What is it worth?" is really the point to be solved on the introduction of any new thing. It may seem a very poor platform on which to place the work of the enthusiast and the investigator, embracing, as it does, years of experiment and labor that on which is marked "What is it worth?" but I fear that with but few exceptions it comes down to that at last.

There are exceptions to every rule, and all of us have met the enthusiast who, for the love of the thing only, goes on working untiringly in one groove or another, using both time and money for the advancement of the art-science, anticipating no profit from his labor, the pleasure of overcoming difficulties and the joy of "finding out" being his end and aim. But, even in such a case, what has been discovered, if to spread and flow, it must come to the river of commerce.

Whether we agree regarding the position I take up, that the end and aim of all our work tends to commerce, I have no doubt we will be as one on the various items that I intend to touch upon to-night, for they are in their very essence the work of the business. And, first, I would make a few remarks upon the Convention itself and its membership.

Last year was the most successful of all our meetings; but the Convention meetings, since the very start, whether large or small, have ever shown great vitality. Still, the professional has not given it either the attention or the support that I feel it was his duty to do, and that the institution deserves.

The greater part of the success of our meetings is due the support and enthusiasm of the amateur element, and why should this be? Surely there ought to be some equality of representation. The profession, as a body, is large enough and influential enough to at least treble its present representation; but I fear that it is the spirit that lacks energy and enterprise. At first there was a considerable outcry about the time the meeting was held being unsuitable for many in the profession. To meet this objection, the date has been changed two or three times, I think; this with some little advantage perhaps, but not much.

Taking professional photographers collectively, I feel that if they tried they could make this meeting for themselves the most pleasant and profitable outing of the year. Every one that has been with us knows that this is an honest statement, and, if they would only gather round in numbers, they would find it a gain both in health and business. The lines on which our Convention is run commend themselves, and are better, in my opinion, than those adopted by our American friends. To a great extent the American Convention is a dealer's show, a good enough thing in its way, but the platform upon which we meet is more independent, and the principal business of our gathering is educational and social, the dealer's part being a mere detail, and never interfering with the more salient points for which we meet.

The progress of the year shows steady advancement; nothing startlingly new, but there's not a week passes without the introduction of some ingenious device or discovery which tends to save labor or to perfect results.

It has been stated that there are more patents taken out in connection with photography than in any other trade of like dimensions, and, looking at the continuous stream of applications for protection, it is easy to believe.

Printing-out papers is one phase of photographic work that has a made a marked advance in the currency of the year. Gelatino-chloride paper has come into almost universal use, the beauty of the finished results secured by the use of this paper tending greatly to its growing popularity. Collodio-chloride paper has also grown considerably in demand, as it is considered by many to allow of a greater variety of tone, and also that it is more permanent than the gelatino-chloride, but to prove the latter requires the test of time. The new cold-bath-process paper introduced by the Platinotype Company has also made a rapid stride

to the front, and is now almost universally adopted. The advantage of local development by its use being rendered sure and easy was a great recommendation to its success, and where it has been fairly tested, the hot bath has been laid aside for this more perfected process.

Stereoscopic photography, which, like the sleeping beauty, has been lying dormant for so many years, lives and breathes again. A great advance has been made, and considerable work has been done in this department during this last year, and it still goes on increasing. A big future may be anticipated for it.

The hand-camera competition still runs on without impediment. In lenses, the Zeiss, the Dallmeyer Tele-photo, and the Ross Concentric are increasing in demand. Isochromatic plates are taking a firmer hold, and the Sandell has been adoped by many.

The journalism devoted to the profession seems to be out of all proportion to the extent of the trade it caters for, but I suppose time will try them, and the weakest will go to the wall.

And now I will leave the various members, in their various classes, during the Convention, to thrash out their various themes, one by one, scientific or chemical, each in his department, be it development, speed, light, color, or optics, each of them needing its own specialists to do it justice.

I hope you will all spend a happy and enjoyable week.

On the motion of Mr. James Martin, the President was thanked for his able address, and the Mayor for his cordial welcome.

A COPYRIGHT CASE.

A CASE of considerable interest to photographers has recently been tried in the United States Circuit Court. The complainant, Mr. Benjamin J. Falk, the well known photographer, sued Mr. R. M. Donaldson for infringement of his copyright on a photograph of the actress, Julia Marlowe. The copyrighted photograph was used by the defendant as a basis of a lithograph, and provided the design of the photograph is so far copied as to appropriate his manifestation of his conception, or even a substantial part, it constitutes an infringement.

The defendants denied that the photograph represented any original, intellectual conception of the complainant.

Complainant testified as follows: "I tried to produce an ideal portrait of the Greek maiden of the play, and considered that the main sentiment embodied in the character is a combination of simplicity, innocence and courage.

Complainant further explained at length the methods employed by him in such cases, to make the subject so forget his surroundings as to mentally assume the part or character to be represented in the picture; and the arrangement of the curtains, screens and head lights, so as to bring out expression and character.

The defendants claim that a photographist is a mere mechanic, but an examination of the photograph showed that it is the work of an artist. The question is, whether the artist was Miss Marlowe or complainant. How far the artistic contributions are to be attributed to the talent of Miss Marlowe, it is impossible to say. The testimony of complainant as to his share in producing the result is not denied.

He was an artist before he became a photographist. He had had a large experience in taking photographs, and, on this occasion, he appears to have availed himself thereof, and, by the use of lights and shadows, and various devices, to have produced a most satisfactory result.

Defendants denied that they had copied complainant's photograph, or any part thereof.

There was a sharp conflict of testimony as to whether Mills, one of the defendants, admitted that their lithograph was a copy of complainant's photograph, and attempted to settle with complainant for infringement.

But the real question was not one as to an admission of fact, but whether the lithograph is an illegal appropriation of the substantial parts of the photograph.

The forcible argument of counsel for defendants upon this point proceeds upon the theory that the idea or conception of the original artist may be followed and used by another, provided he clothes such idea or conception in different language or form. He claims that the lithographer had a perfect right to use the photograph for a study, suggestion, and even as a model, in developing his own ideas, and that, as he had merely taken the conceptions of the other, and clothed them in his own form and expression, his work was original Copying, he says, involves not only taking another's ideas or conception, but also their expression.

The question presented here is, whether the defendants have so far copied the design of the complainant as to appropriate his manifestation of his conception, or a substantial part thereof.

The lithograph is not strictly a copy of the photograph. It differs from it in various ways. Some forty differences have been suggested by experts introduced by defendants. Expert testimony in such a case has no greater weight than expert testimony upon the question of infringement.

Imperfect and comparatively lifeless as the lithograph is, yet it needs no expert to show that, although varying somewhat in design, it is a copy of the conception of complainant. The angle of the head, the clasping of the arms, the interlaced fingers, and the general expression and pose, irresistibly suggest and recall the photograph.

Defendants claim that the value of the photograph has not been impaired by the publication of the lithograph, and there is no infringement, because the photograph and lithograph are not rivals, and are not in competition in any way. This fact does not affect the question of infringement, but only the measure of damages (Falk v. Howell. 37 Fed. Rep., 202).

The measure of complainant's right is not limited by the mere fact that the lithograph would not displace the photograph in the market. He is entitled to any lawful use of his property whereby he may get a profit out of it.

It is not a question of the extent of damages, but of violation of rights.

I have not overlooked the suggestions of counsel for the defendants that the application of the copyright law to cases like the present may lead to abuse, and be productive of injustice. But this Court must administer the law as it finds it. Under the rule established in the Sarony case, the complainant must be held to be the author of the conceptions expressed in the photograph. The defendants have appropriated a substantial portion of such conceptions. Let there be a decree for an injunction and an accounting.

Notes and News.

Mr. Alfred Stieglitz takes the place of Miss Catharine Weed Barnes as editor of *The American Amateur Photographer*. No better choice could possibly have been made. Mr. Stieglitz is not only an able writer, but a worker of the highest ability. Miss Barnes, who has now become Mrs. H. S. Ward, will reside in England, but will act as associate editor, so the readers are enriched by the change.

Photographing from a Balloon.—Mr. W. N. Jenning, the photographer of the Pennsylvania Railroad Estate Department, ascended in a balloon with Prof. King, on the "Fourth," and while at an altitude of a mile or so, made a number of photographs of the earth below him. The weather was fine and clear, and some very fine results were obtained.

The charming illustrations in our last number were by the renowned amateur photographer, Mr. Alfred Stieglitz, whose work is known all over the world. Such pictures as these stand too high on their own merits to need any praise from us. They have been reproduced by the Chromo-Engraving Company, whose process of making half-tones yields some of the finest results we have seen.

At a meeting of Directors of the Murdock-Wunderlich Co., held yesterday afternoon, Wm. M. Regan resigned the office of president and Albert Wunderlich resigned the secretaryship. Pressure of other business was the reason given for the change.

A Competition.—An English magazine, *Woman*, has recently given a prize "for the neatest and most appropriate answer a man could give to a young lady who, on showing him her photo. remarked, 'I never knew how ugly I was before I saw that.'" The prize reply was:

> "Oh wad some power the giftie gie us,
> To see oursels as others see us."

which was sent by six competitors.

How strange and startling it will be a century or two hence for our descendants to turn over the photographs of their ancestors * * * * The portraits left by our forefathers expressive though they may be, whether painted or engraved, can never produce in us an impression equally vivid, but photographs are the very reflections of living beings fixing their precise attitudes, their gestures, their most fleeting expressions. What a curious thing it will be, what an awe-inspiring thing for future generations to study our faces when we shall have fallen into the dead past.—*Loti's Book of Pity and of Death.*

The Eastman Kodak Company request us to insert the following, which they have received from Mr. Higginbotham, manager of the photographic department at the Word's Fair:

World's Columbian Exposition,
Chicago, July 11, 1893.

The free dark-room building, erected by the Eastman Kodak Company and the G. Cramer Dry Plate Works, near the south-west corner of the Horticultural building, is the only dark-room authorized on the World's Fair grounds.

[Signed] H. D. Higginbotham,
Manager.

Photographic Societies.

The Utica Camera Club has been organized at Utica, N. Y., with a membership of 35 and the following officers: W. C. Walker, President; Harry Lancaster, Secretary; W. W. Nicholson, Treasurer. The club has secured rooms and these are being furnished for its use.

St. Louis Camera Club.—On Saturday, July 8th, the annual Field Day and Excursion was held, to the beautiful suburban summer resort on the Frisco Railroad, known as Meramec Highlands. As the train pulled out of the St. Louis Union Station, the rain came down in torrents, but shortly after the Highlands were reached, the sun came out and brightened up not only the surrounding country, but the hearts of the Club members as well. About an hour was spent at the Highlands Station waiting for the ground to dry up somewhat, the members in the meantime photographing groups and such views as could be readily obtained, after which time the party dispersed themselves through the woods and roads near by, others taking a steam yacht and row boats and going up and down the Meramec River in quest of the many beautiful views which can be found there.

On the return trip everyone expressed themselves as very well satisfied with the result of the day's excursion, and their only regret was that there were not more members of the Club who had taken advantage of the opportunity to obtain the pleasure which can only be found in a day's outing in the interests of amateur photography.

The Editorial Table.

Sweet, Wallach & Company's Catalogue of Photographic Supplies is one of the most complete and at the same time the most conveniently arranged catalogues we have seen. It contains descriptions with prices of cameras, stands, tripods and other apparatus, chairs, backgrounds and accessories, and, indeed, as stated on the title-page, "photographic goods of every description." It will be sent postpaid on application. Sweet, Wallach & Co., 215–221 Wabash Avenue, Chicago.

We have received a copy of "Our Dumb Animals," a bright illustrated paper, the organ of the "American Humane Education Society." The objects of this society are to humanely educate the American people for the purpose of stopping every form of cruelty, both to human beings and to the lower animals. That there is room for such work we were forcibly reminded at sight of a street car laden with over a hundred passengers clinging to every square inch of room, and dragged along by two poor ill-fed creatures. Man's inhumanity to man and to dumb creatures constitutes the great evil of the world. Every one may do a little by his own efforts to improve this.

From Mr. Justin N. Mead we have received a very fine print of a group of sheep The paper he prepared himself, following the instructions laid down by Mr. W. E. Woodbury in his chapters on the "Art and Practice of Gelatino-Chloride Printing," now appearing in The Photographic Times.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.
2. The camera must be held in the hand during the exposure.
3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.
4. The prints must be mounted but not framed.
5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. William Kurtz, who we hardly need state is one of the leading photographers of America.

Queries and Answers.

95 W. J. GOYNE.—I have just made new silver bath hydro. 48. Water has been kept in glass fruit jar since middle of winter, when I got a lot of pure clean snow and saved it for silver baths. Now, after having my silver refined and making new bath, it turns red on being put out in sun. Please let me know what is the reason of the red color.

95 *Answer.*—Organic substances in the snow water. Add a trifle carbonate of sodium to the solution and let it remain in the sun till the organic matter has settled. Then filter and reacidify. You speak of having refined your silver. It would be interesting to know how it was done.

96 CAMILLE.—When making negatives for photo-mechanical printing purposes, is it absolutely necessary to use a prism with the objective in order to reverse the image?

96 *Answer.*—It is not. Use a Carbutt stripping plate; after developing and fixing the negative, detach the film from the glass support just as Mr. Carbutt directs, and then print from the reverse side of the film.

97 AJAX wants to know how cloud pictures are made?

97 *Answer.*—The same as any other picture. Use a rapid plate, expose instantaneously and develop properly. Not all accumulations of clouds give equally effective pictures. The masses of clouds we notice after sunrise during the vernal and autumnal equinox make fine pictures. Or a bank of clouds before the setting sun gives also very fine effects. But then we want a color-sensitive plate.

98 PETER T. P. has sent several stereoscopic slides on paper, and desires our opinion on them.

98 *Answer.*—Very sharp; very good stereoscopic effect; but the negatives from which they are printed are altogether too intense, hence they look harsh and chalky under the instrument. Expose stereoscopic pictures sufficiently, develop with amidol so to secure finest details in the shadows, and to avoid too intense high lights.

99 T. M. M.—What is a 10 per cent. solution?

99 *Answer.*—This question has been discussed for the last three years in American and foreign photographic journals. The conclusion we have come to is: Of the substance to be dissolved, 1 part by weight; of the solvent, 9 parts by weight; the temperature being 65 deg. Fahr.

100 P. Q.—What is the difference between the Centigrade and the Fahrenheit thermometrical degrees?

100 *Answer.*—See page 321, "American Annual of Photography for 1890."

101 J. R. SMITH—On page 353 of PHOTOGRAPHIC TIMES issue of July 7th, I find a platinum bath formula. Is this a combined, or simply a toning bath? If the latter, please give formula for fixing bath? Also where the chloroplatinite of potassium can be obtained and the cost of same per ounce.

101 *Answer.*—It is a toning bath only. Fix in one of hypo to five of water, and a few drops of ammonia added. Price of chloroplatinite of potassium, about $15 to $16 per ounce, and can be obtained from Messrs. Chas. Cooper & Co., 194 Worth Street, New York.

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Issued every Friday.

W. I. LINCOLN ADAMS, Editor.

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Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
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Twelfth.—Because its pages are double the ordinary quarto size.

Thirteenth.—Because its rates are lower than any photographic publication, considering the size of page and the extent of circulation.

Fourteenth.—Because your advertisement will receive the best of treatment on the part of the compositor, and will be advantageously placed in its pages.

Fifteenth.—Because all its advertisers are endorsed by the publishers as being worthy of patronage.

Sixteenth.—Because no advertisement in any way objectionable is admitted to its pages.

Seventeenth.—Because all the leading manufacturers of and dealers in photographic goods are represented in its advertising pages.

Eighteenth.—Because its advertisers receive more returns from ads. in it, than in any other photographic publication. (An unsolicited testimonial from a leading photographic dealer.)

Nineteenth.—Because it is not an experiment, having reached its 22d year.

Twentieth.—Because, in short, it will pay you to advertise in it.

TRY DR. ANDRESEN'S AMIDOL DEVELOPER.

Business Notices.

FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee, Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

CHEAP.—Portable frame gallery, with contents, including two first-class cameras and Eureka Burnisher; will sell contents separately. 51 German Insurance Building, Rochester, N. Y.

A SELECTED PORTRAIT LENS, made by Dallmeyer, for sale. This lens has done some of the best known work in this country. It was a premium lens, originally costing over two hundred dollars. It can be seen at the warerooms of The Scovill & Adams Co. It goes to the highest bidder. Call for or address "PREMIUM LENS," 423 Broome St., New York City.

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S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.
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WANTED.—A copy of "The American Annual of Photography and Photographic Times Almanac" for 1889. Address W. F. DURNALL, No. 462 So. 24th Ave, Omaha, Neb.

PERFECTED BRADFISCH Aristotype Paper leads the world! It does not stick, nor does the surface of the print rub off.

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A STEREOSCOPIC HENRY CLAY CAMERA FOR SALE.—This camera has been thoroughly tested and is as good as new. Address "STEREO.," care THE PHOTOGRAPHIC TIMES.

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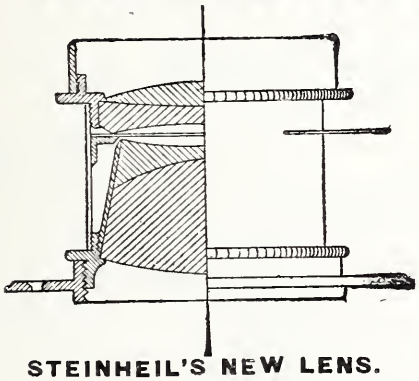
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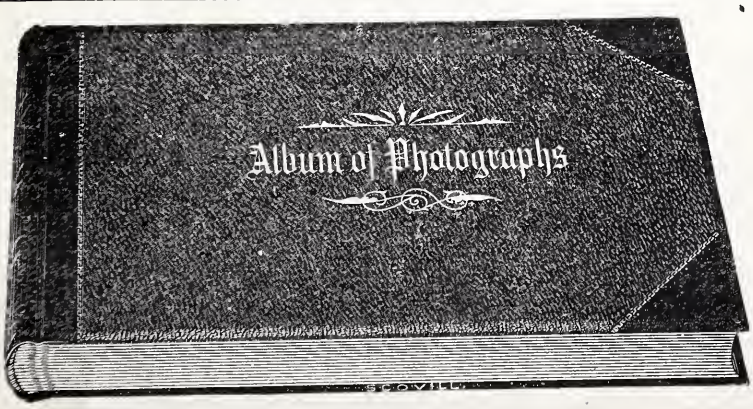
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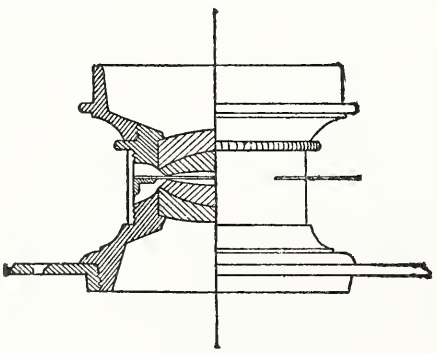
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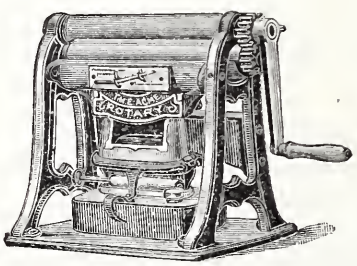
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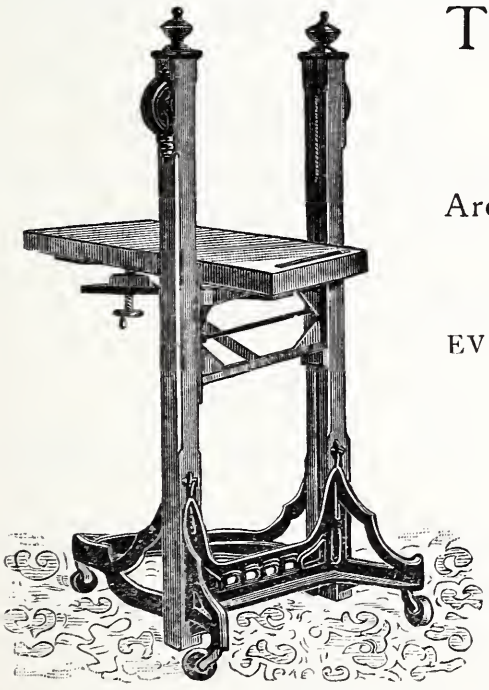
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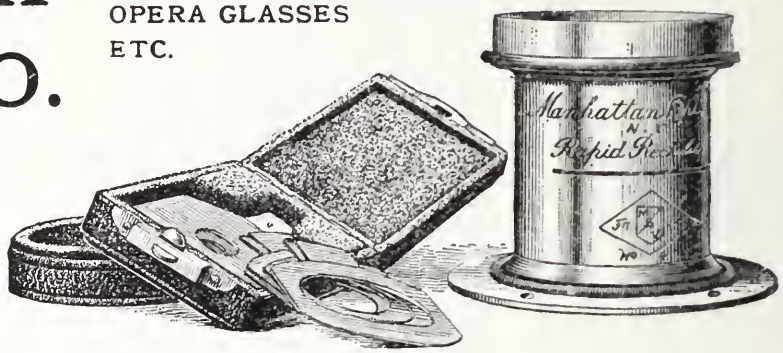
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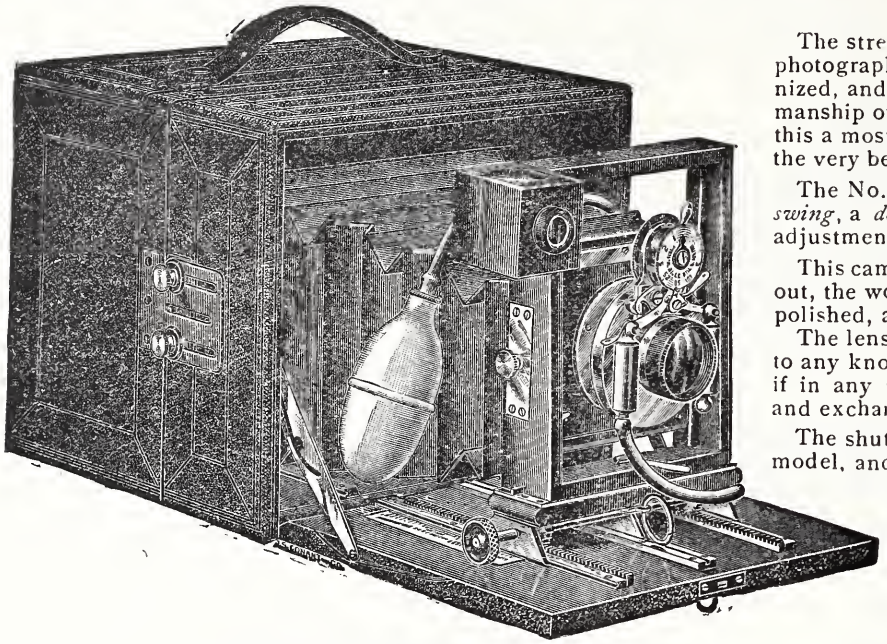
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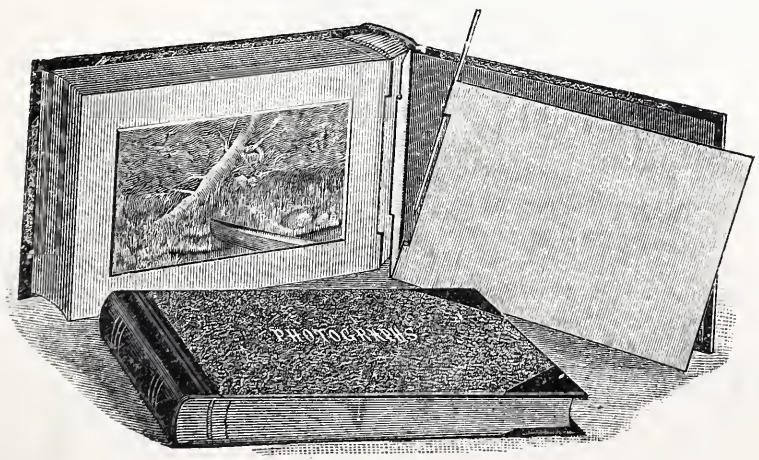
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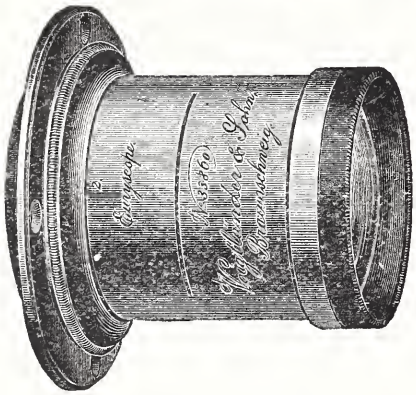
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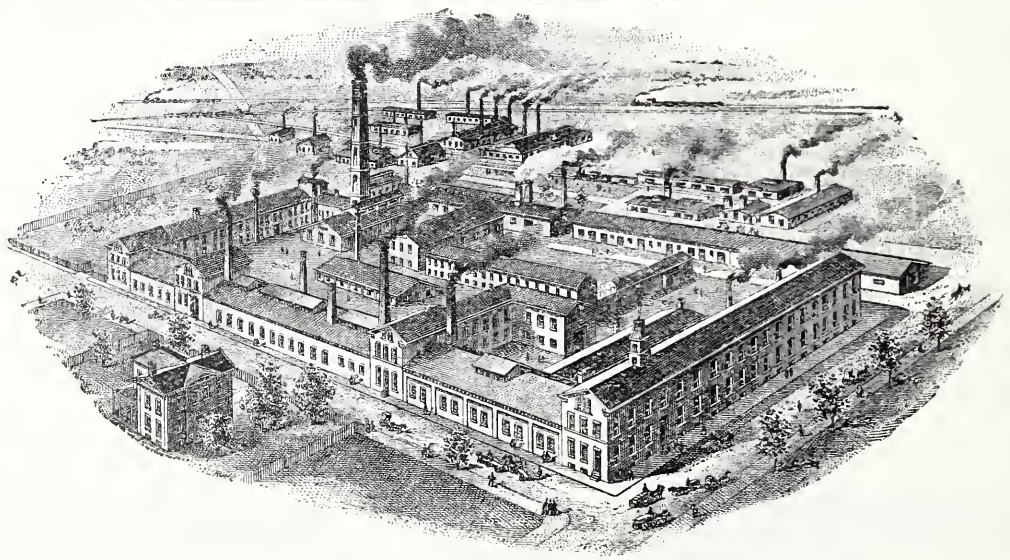
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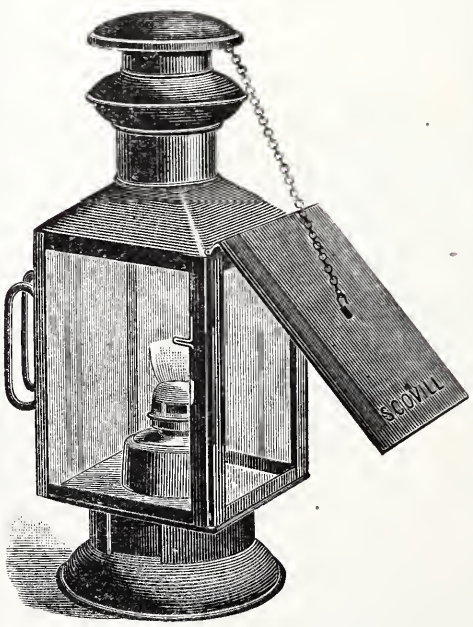
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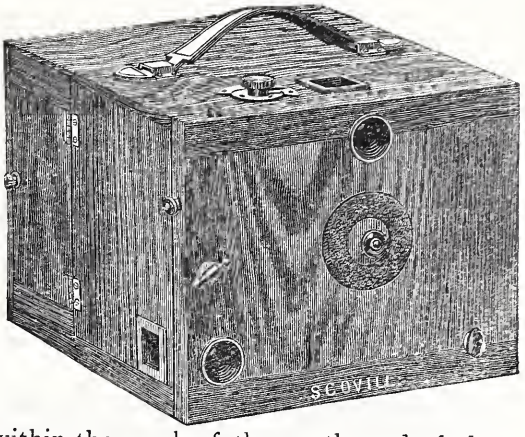
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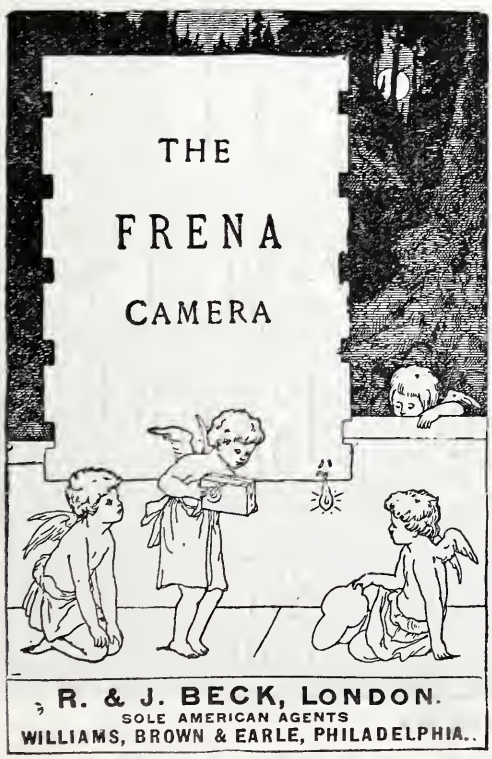
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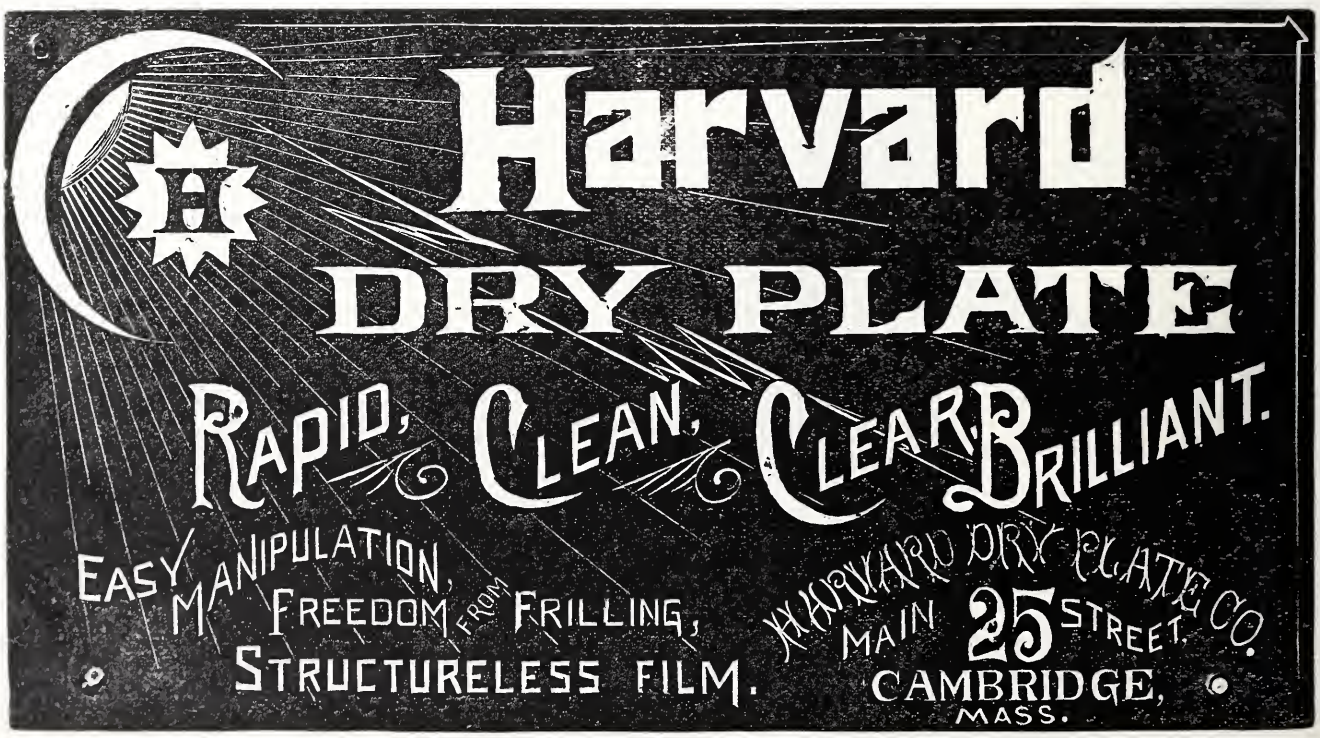
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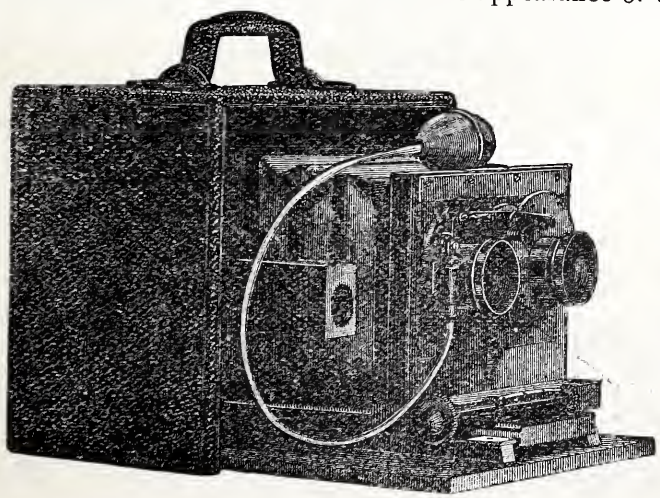
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

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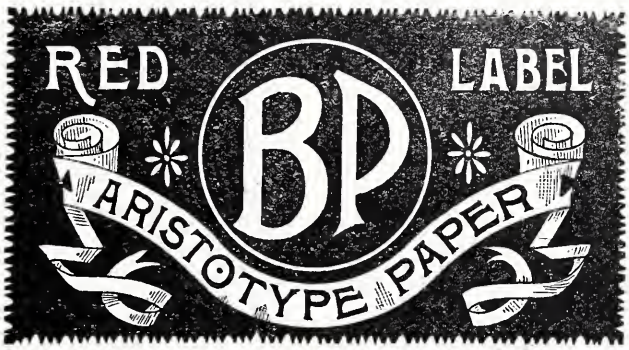
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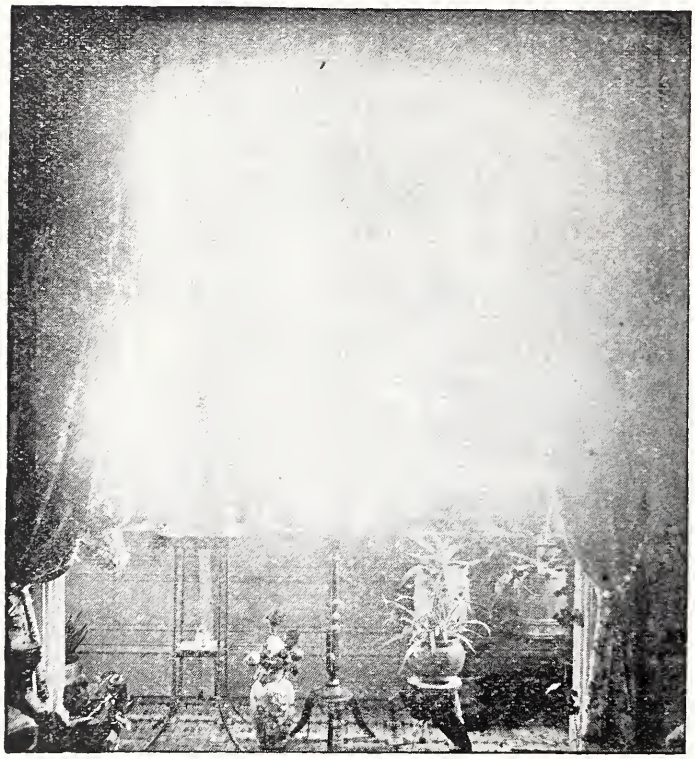
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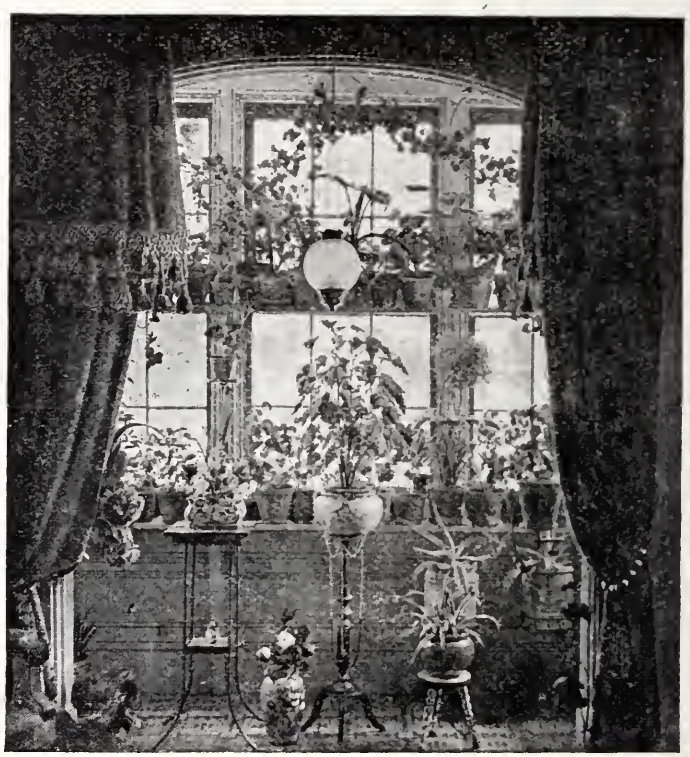
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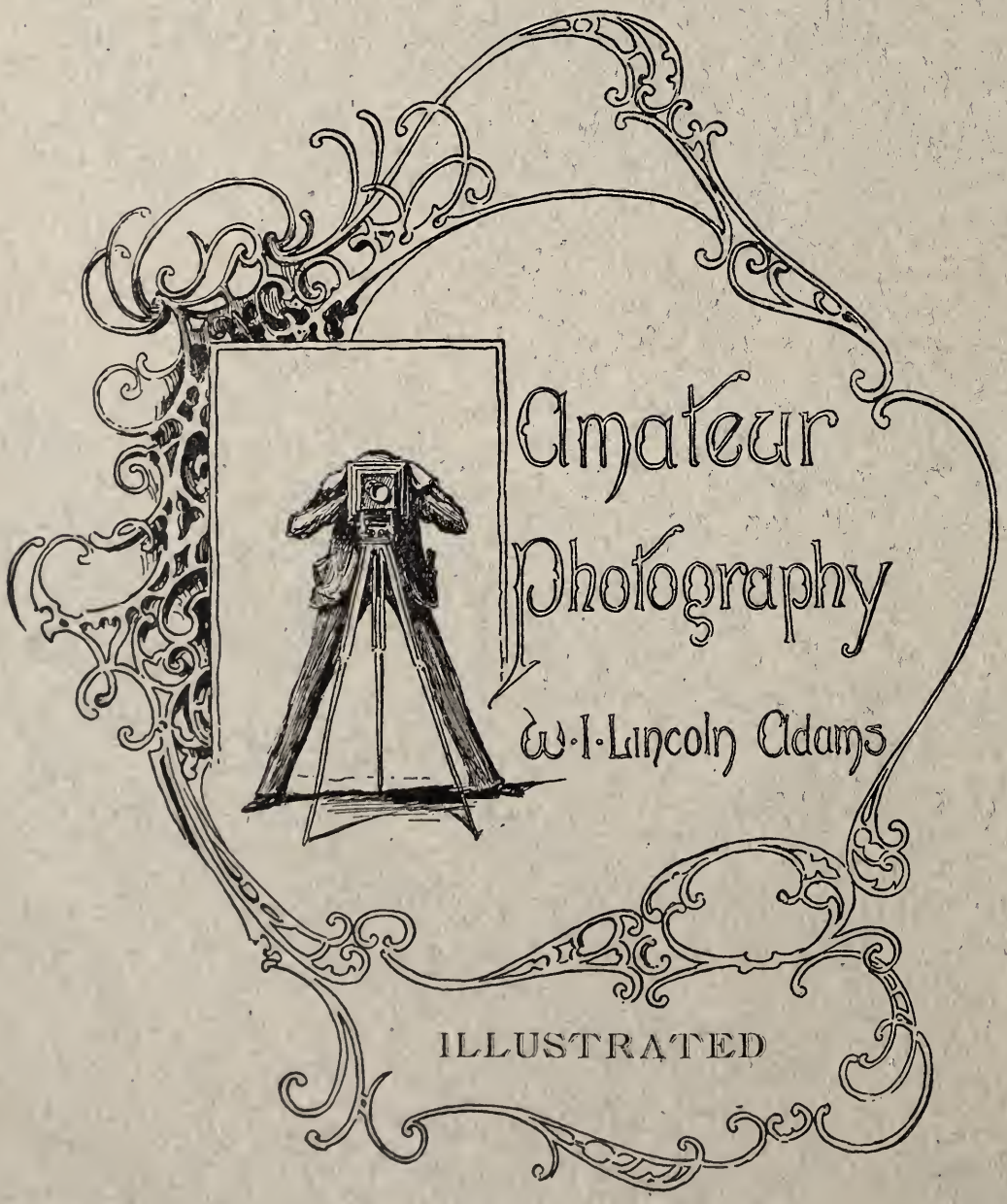
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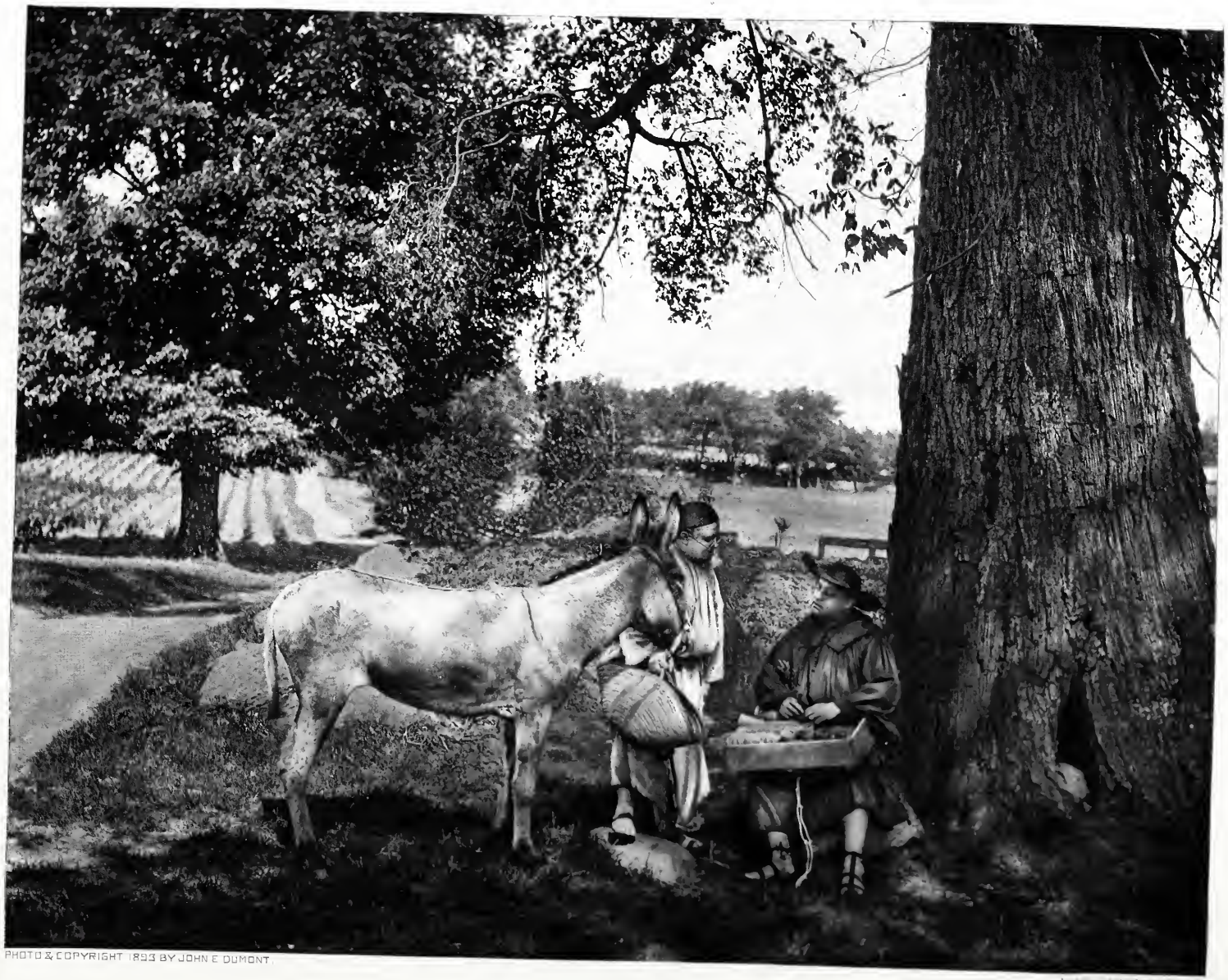


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GOSSIP BY THE WAYSIDE.

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. AUGUST 4, 1893. No. 620.

GOSSIP BY THE WAYSIDE.

WE take considerable pleasure in presenting this picture to our readers. It needs no explanation on our part; the artistic posing and arrangement make the picture tell its own story. Mr. John E. Dumont is an amateur of no mean ability. Although he only commenced photographic work as a pastime some few years back he has already won for himself a favorable reputation among both English and American amateurs. Genre work is his specialty. To do this successfully he has made careful studies of those methods and principles which guide the artist and sculptor, at the same time throwing into his pictures that striking display of individuality that is necessary to true success in photography.

Besides a number of minor prizes, Mr. Dumont has carried off some ten or twelve gold, silver, and bronze medals.

At the recent Philadelphia exhibition, besides awarding a medal the judges stated that his pictures were the finest in the exhibition.

Perhaps the true secret of Mr. Dumont's success is his belief in making few exposures, but each exposure a picture. Sometimes as many as six months elapse before the camera is used.

The picture is reproduced by the photogravure process.

A PHOTOGRAPHIC LAW FOUND WANTING.

CAPTAIN ABNEY'S communication to the Royal Society on a failure in the well-known law in photography that, when the products of time and intensity are equal, then equal amounts of photographic action will result (report of which will be found in another column), opens up an interesting field of experiment.

It has hitherto been imagined that (say) thirty exposures, each exactly a second in duration, would produce the same amount of chemical change upon the light-sensitive molecules as a full exposure of thirty seconds. Such is evidently not the fact, however, and some light is thrown upon the subject of our last week's editorial, in which we imagined that there must be a preliminary resistance to be overcome before any chemical action takes place.

The luminiferous energy is now supposed to be an electro-magnetic vibration, and it is stated that the rapidity of the vibrations which influence the light-sensitive molecules is calculated to be five hundred billion times in a second. A certain amount of these vibrations must expend themselves before any action commences. The amount of the loss would, with thirty separate exposures of one second, be thirty times greater than with a continuous exposure of thirty seconds' duration.

It would appear axiomatic that if the law of light ratio failed in short exposures, it would also fail when light of weak chemical action was employed. Captain Abney has found this to be the case. In his address, as President of Section A of the British Association at Newcastle in 1889, he made the following remarks on the subject:

"One word as to a problem which we may say is as yet only qualitatively and not quantitatively small. I refer to the interchangeability of height of exposure with intensity of light. Put it in this way. Suppose with a strong light L a short exposure E be given, a chemical change C is obtained; will the same change C be obtained if the light is only an nth part of the light L, but n times the exposure? Now this is a very important point, more particularly when the body acted upon is fairly stable, as, for instance, with some of the water color pigments, which are known to fade in sunshine, but might not be supposed to do so in the light of an ordinary room, even with prolonged exposure. Many experiments have been made at South Kensington as regards this, more especially

with the salts of silver, and it is found that for any ordinary light, intensity and exposure are interchangeable, but that when the intensity of light is very feeble, say, the $\frac{1}{1,000,000}$ of ordinary daylight, the exposure has to be rather more prolonged than it should be, supposing the exact interchangeability always held good ; but it has never been found that a light was so feeble that no action could take place. Of course, it must be borne in mind that the stability of the substance may have some effect ; but the same results were obtained with matter vastly more stable than the ordinary salts of silver."

In more recent experiments he has shown that a slow acting sensitive surface will give a marked difference in blackness when developed, if exposed for forty seconds at four feet, to that obtained on a similar surface, exposed for only ten seconds, but at a distance of two feet. By the well-known law that the actinicity of the light decreases in the inverse ratio of the square of the distance, these two conditions of distance and exposure should give results identical in character. But such is evidently not the case, the exposure at the long distance from the illuminant must be materially increased. With rapid plates this failure in the law is not so marked ; the more rapid the plate the feebler the light necessary. Another point to be gathered from these experiments, and one of considerable interest, is that the gradation of a negative will be more rapid if a long exposure is given than with a short one. This apparently solves the problem why a very slow plate never gives the same range of gradation that a quick one will yield. We await with interest the fulfilment of Captain Abney's promise to publish full details of his experiments.

THE CHICAGO CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

THE thirteenth Convention of the P. A. of A. was opened, as announced, in the Second Regiment Armory, Chicago, Tuesday morning, July 18th. The attendance was slight, there not being over two hundred members present when President Place called the Convention to order.

The Rev. Dr. Thomas being introduced, made an address of welcome which was well received. President Place responded, and then the regular order of business was taken up. There being no report on the progress of photography or other reports of committees, the question of location for the next convention was considered, and, on motion of Mr. MacDonald, of Albany, a committee was appointed to make a report on cities the following day. Mr. H. Snowden Ward, of England, being present, was invited to make some remarks, which he did. The Treasurer's report was presented and accepted, and the session closed with the report of the President by Mr. Place.

THE SECOND DAY

there were rather more in attendance, the Treasurer's membership subs showing over three hundred who had paid their dues ; but at no time during the convention did the number greatly exceed four hundred. This was considered by all a very poor showing for the World's Fair City during the Columbian Exposition.

The Committee on Location made its report through Mr. MacDonald, the chairman, in favor of St. Louis, but there were other cities named, so it required considerable balloting before St. Louis was finally chosen. A resolution to change the constitution and by-laws was offered by Mr. MacDonald. Mr. Motes, Chairman of the Nominating Committee, made his report as follows :

For President, Adam Heimberger, New Albany, Ind.

For 1st Vice-President, George T. Bassett, New York.

For 2d Vice-President, D. Rad. Coover, Chicago, Ill.

For Secretary, J. Ed. Rosch, St. Louis, Mo.

For Treasurer, John S. Schneider, Columbus, O.

After some further routine business the Association adjourned until

THE AFTERNOON SESSION

which was even smaller in attendance. The resolution offered by Mr. MacDonald, in the morning, to change the constitution and by-laws, so that the Convention will hereafter be held annually, instead of every other year, prevailed.

Mr. Snowden Ward gave an interesting account of the Conventions of the Photographers of the United Kingdom of Great Britain.

A committee was appointed to "look after" the Daguerre Committee, and some other routine business was accomplished.

THURSDAY MORNING

the election of officers took place, resulting in the unanimous choice of the regular nominees.

Addresses were made by Abram Bogardus and Doctor Vogel. A resolution protesting against the present high tariff tax on photographers' supplies,

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and calling upon representatives in Congress to reduce the burden, was offered and adopted.

After some routine business the Association adjourned until

FRIDAY MORNING.

At this session the judges made their report as follows:

THE AWARDS.

GRAND PRIZE—Heimberger & Son, 1st; Baker & Co., 2d.

CLASS A.—Julius Strauss, 1st; Montfort & Hill, 2d.

CLASS D.—Heimberger & Son, 1st; Fowler, 2d.

CLASS E.—McCrary & Bronson, 1st; Fowler, 2d.

CLASS H.—Beck, 1st; W. H. Irskin, 2d.

CLASS I.—Chas. Hetherington.

CLASS J.—Pifer & Becker, diploma; L. C. Overpeck, diploma.

CLASS K.—K. Gregor, 1st; Reutlinger, 2d; S. W. Bhedwar, 3d.

CLASS C.—Steckel, 1st; Stein, 2d; Gilbert & Bacon, 3d.

DIPLOMA FOR MOST TASTEFULLY ARRANGED EXHIBIT.—J. De Vos, Warsaw, Ind.

CLASS B.—Steckel, 1st; Dana, 2d; Coover, 3d.

CLASS F.—James Inglis, 1st; E. Long & Son, 2d.

FOREIGN PRIZES.—England, McGregor, 1st; France, Reutlinger, 2d; India, Bhedwar, 3d.

AWARDS FOR THE MURDOCK ARISTOTYPE PAPER.

CLASS A.—First premium, $500, Stein.

CLASS B.—Second premium, $200, Elton.

CLASS D.—Fourth premium, $100, Schumacher.

CLASS E.—Fifth premium, $50, Sargent.

SWEEPSTAKES DIAMOND MEDAL.—Scott.

Prizes in the $200 Kloro contest given by the Photo Materials Co., of Rochester, N. Y.:

CLASS A.—$500, Rosch, of St. Louis, 1st; $150, S. L. Stein, of Milwaukee, 2d; $100, Scott, of Chicago, 3d.

CLASS B.—$150, Cornell, of Rochester, 1st; $75, Root, of Chicago, 2d; $50, Uhlman, of St. Joseph, Mo., 3d.

CLASS C.—$100, Strinjsson, Appleton, Wis., 1st; $50, H. Levin, Chicago, 2d; 3d, thrown out—not merit enough.

The closing exercises were performed and the Association adjourned until next year, in St. Louis, at the time to be announced later by the Executive Committee.

Our report is brief; but there is very little to report. Nothing of importance was done at any of the sessions, and, indeed, no useful purpose was served by the Convention as a whole.

EDITORIAL NOTES.

THE business situation continues to absorb the serious attention of the country. What is the reason of this? It can partly be explained by saying that the whole basis of commerce rests to a considerable extent upon mutual confidence, and just at present this confidence has been withdrawn, people have become frightened, and instead of helping to further each other's interests, they have made a bad situation considerably worse. Directly confidence is restored and people begin to see that nothing very serious is the matter, the trouble will rapidly vanish.

WHAT is clearly the thing to do is to put confidence in and work for the interests of each other. We are doing all we can for you. The recent improvements in the magazine, the increase in the size, the embellishment of the pages with numerous half tones, the employment of more expensive paper to get the best effect with these illustrations, and the engagement of many more of the most distinguished authors and scientists to contribute to our pages will surely be sufficient to show you that we have every confidence in you and every wish to study your interests and give you what we think will be most welcome to you. All we ask in return is some show of interest in what we are doing for you. That you can materially assist us you are surely aware. By speaking of our paper and the new attractions to others, and, if possible, inducing them to contribute, you will be doing a great deal of good for us and for yourself, too. You may imagine that this magazine cannot possibly be further improved, but we are constantly thinking of new ideas for still further enhancing its value, and when we think they will be welcome to you we adopt them immediately. All we ask in return is a still further increase in the support that you have for so many years accorded to us.

THERE is still another point we would like to mention. When you are sending an order for articles you have seen described in our advertising columns or elsewhere in this magazine, it is very little trouble to you to mention that your attention was attracted by THE PHOTOGRAPHIC TIMES. It only means the writing of a few more words, yet it may be of considerable value to us, and, as we have already pointed out, any benefits that we receive are shared with you, so that you will also not be the loser by the slight action.

IN our last we gave the programme of the World's Congress of Photographers, to be held in Chicago from July 31st to August 5th inclusive. If the titles of the papers to be read are any guide, this promises to be the finest collection of interesting photographic matter ever got together. We have made arrangements for a full report of the proceedings, and the papers of chief interest will be reprinted in this magazine.

IN an article on photography Professor Burton says that it is well known that some people prefer a reversed portrait of themselves to a direct one. The reason of this is obvious. No one ever sees himself as he really is. His idea of his own appearance is obtained from views in a mirror, which of course gives a reversed image, consequently a reversed photograph is considered by the sitter to be the most faithful likeness.

ALMOST every photographer has been at some time or other troubled with blisters on albumen paper. Mr. W. R. Kennan, writing to an English contemporary, gives a method of avoiding them which we have ourselves proved to be a most successful one. After toning in the usual way, mix some liquor ammoniac with the hypo bath and fix as usual; but when fixed leave the prints in the hypo bath with some of the hypo, and dilute very gradually with water, keeping the prints in motion. The secret lies in not making a sudden change from the hypo to the plain water, so that the hypo is eliminated suddenly. By experimentation we found that sudden changes are producive of blisters more than anything else.

IN a few weeks we shall present to our readers a very fine photograph taken in the World's Fair grounds by Official Photographer Arnold. The picture is a most attractive view of the Administration building taken from the Court of Honor, and will be the only picture of the World's Fair that will be permitted to be reproduced in any photographic magazine.

M. M. LUMIERE and SERGANTZ strongly recommend the anhydrous sodium sulphite in preference to the ordinary recrystallized salt. The anhydrous sulphite is stable both in dry and liquid state, and one part is equal to two of the recrystallized salt.

CONVENTION NOTES.

[BY OUR SPECIAL REPRESENTATIVE.]

DR. VOGEL said he could "truly say of American photographic work that it is not behind the best that is done in Europe."

MR. BOGARDUS modestly passed around a daguerreotype of himself which was made in 1846, when, as he expressed it, he was "a promising youth."

THE usual "kick" was made at the meeting when the awards were announced, by the unsuccessful competitors. The difficulty is there are not enough medals "to go round," though this year the exhibitors were so few in number there were nearly enough prizes for all.

"CHARLEY" HETHERINGTON likened albumen paper to daguerreotypes in a few remarks which he volunteered at one of the meetings. No one but him, however, could see the similarity.

ALL the officers for the ensuing year are young men. Mr. Heimberger is the youngest man who has ever filled the presidential chair. We are glad to see the young men brought forward. Give the young men a chance.

WE said, in our editorial report of the Convention, there were no papers read, which was perfectly true, though one paper was handed in at the last session and was read by title merely. We take pleasure in printing it in another column.

ONE paper! and that one not read. There was also no discussion of an instructive nature. In brief, the Convention amounted to this only: The members met, selected a location for the Convention next year, elected officers and adjourned!

There were some excellent aristotypes shown and a few specimens of work on dry-plates. But that was about all. To what purpose the Chicago Convention of the P. A. of A.? Let us hope for a more profitable convention at St. Louis, next year.

SOME of the more eminent photographers who attended the Chicago Convention of the P. A. of A. were James Landy, of Cincinnati, George G. Rockwood, of New York; James Pierson and J. Morris, of Pittsburg; Steckel and Schumacher, from the Pacific Slope, Bowusox of Dayton, Ohio.

PHOTOGRAPHY AT THE WORLD'S FAIR.

NOTES FROM OUR SPECIAL REPRESENTATIVE IN CHICAGO.

OFFICIAL PHOTOGRAPHER C. D. ARNOLD, whose portrait we present to our readers on another page, is about the busiest man at the World's Fair. He is practical photographer, head printer, chief of developing room, and executive head of the photographic department at the same time. He attends to the permits, oversees the selling of photographs, and generally supervises everything photographic. The illustration which we shall shortly present to our readers was made especially for THE PHOTOGRAPHIC TIMES by Mr. Arnold.

"How many permits do you grant photographers on an average every day?" we inquired of Mr. Arnold.

"Well, to-day," he replied (it was Saturday, July 15th), "I have issued only fifteen. Some days I have made out as many as one hundred. About fifty or sixty is the average, I should say."

Not many, when the great possibilities for the camera in this great artistic triumph are considered.

"THE Midway Plaisance!" What a field for the photographic Free Lance! Here we have life from the Orient, the Islands of the Sea, Indians from our own Western plains, Chinese, Japanese, Javanese, Soudanese, Egyptians, Persians, Circassians and Bedouins; all in their natural dress, surrounded by their national dwellings and the national life. A trip through the "Midway," as it is universally called here, with the camera, yields a collection of negatives which would require miles of travel to obtain elsewhere and hundreds of dollars.

Then there is the huge Ferris Wheel, which is the Eifel Tower of the Fair. It carries you into the air to a height of 240 feet, where you can overlook everything. The Ferris Wheel is the first thing you see as you approach the Grounds and the last thing to fade in the distance as you depart from them. It gives the photographer an opportunity to make a bird's-eye view of the entire Grounds.

Buffalo Bill is here with his "Wild West" Show, and Hagenbech with his trained animals; there are dancing girls from Morocco, Egyptian astrologers, snake charmers from India, and other strange peoples and strange sights without number.

JUDGE BRADWELL is an eminent patron of photography in Chicago. He is manager of the *Legal News* and illustrates it by means of photography. The Judge has given especial attention to half tone work and has carried his favorite process to a degree of perfection never before reached in this country. He prefers half tone engravings on copper to any photomechanical process print. But then his are always the best. The Judge is chairman of the committee having in charge the World's Congress of Photographers, which is the grandest Congress of Photography the world has ever seen.

MR. GAYTON A. DOUGLASS is vice-chairman and is an able second to the eminent Judge. He is the most active man in all that tends to promote the science of photography and the kindred sciences in this country. That is a broad statement we know, but we have no hesitation in making it. It's true.

THE CHICAGO CONVENTION.



CERTAIN ASPECTS OF MODERN PHOTOGRAPHY.

BY WILLIAM GILL.

AT a day in which it may be most truthfully and feelingly said, "of making many books there is no end, and much study is a weariness to the flesh," it is difficult to say anything that will be fresh, either in substance or form, even of so modern a thing as "modern photography."

Indubitably true as this may be, it is no less true that the observations and experiences of the most obscure of conscientious workers possess a

certain interest to thoughtful students, and the hope that this fact may hold good even in the present case is my only excuse for venturing to accept your kind invitation to contribute a paper to this important meeting.

As an individual worker of some twenty-five years' standing, the most striking thing about modern photography is the great advance in technical methods, both as to simplicity and power.

The tools of a modern photographer, speaking from a photographic or technical point of view, merely, may be considered well-nigh perfect.

As the tools of an artist, in the highest and best sense of that ill-used word, they have, no doubt, many and serious limitations, still they are not tools which an artist who respects himself and his work can afford nowadays to despise.

Contrawise, it is confessed by many very good judges, almost against their will, that in spite of such limitations, photographs have been produced by various workers which are genuinely pictorial and artistic in a very high degree.

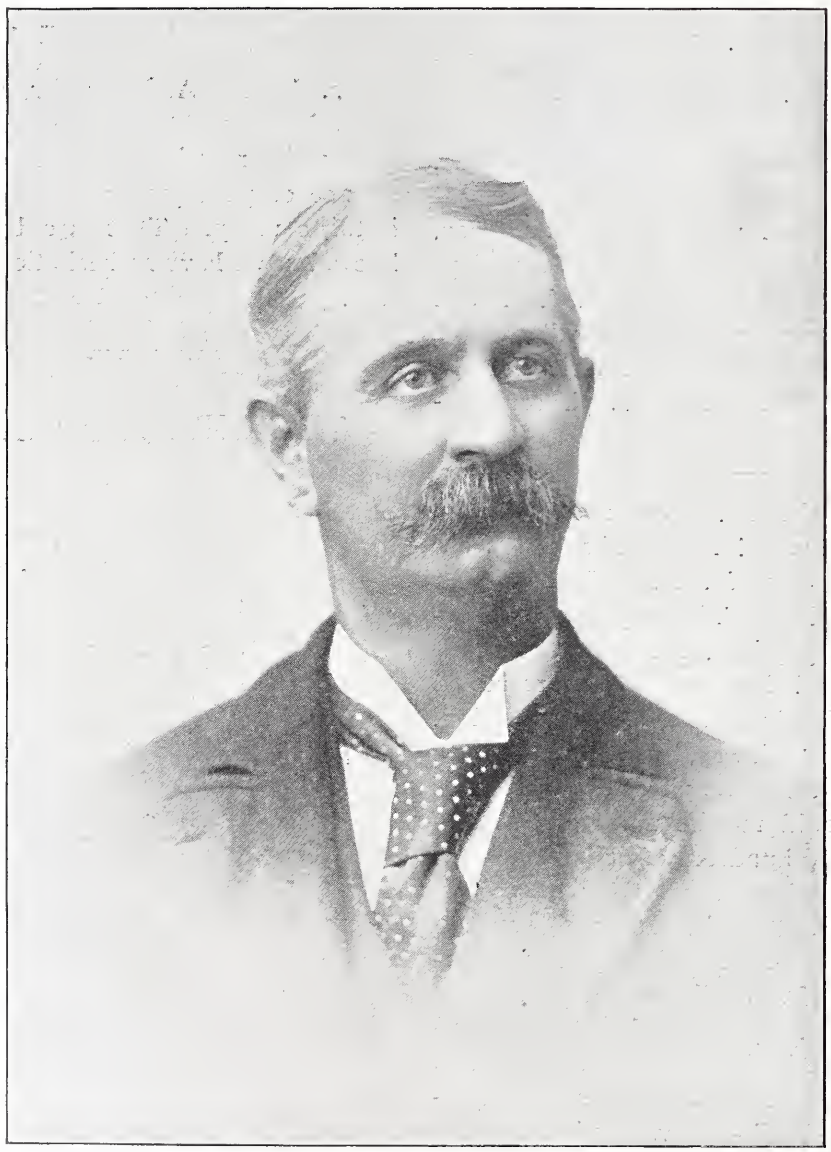
No more need be said to prove the efficiency of our tools, and it may well be maintained that if photography on the whole is not all it ought to be, it is not the fault of the tools but of their users.

When we venture to speak of their users and their use, we are launched upon a very wide field indeed, for remark and conjecture.

To touch, *e. g.*, upon the much-vexed question as to whether photography is an art, or, indeed, as sometimes queried, whether the two have anything at all in common.

Personally, I regard the matter as mainly one of definitions.

Apart from such a point of view, the question



C. D. ARNOLD,

OFFICIAL PHOTOGRAPHER, WORLD'S COLUMBIAN EXPOSITION.

mooted can no more be answered generally or positively, either in the negative or affirmative than it can be said, without reserve, that a painter is an artist or that laying color on a canvas or paper is necessarily an art.

There are arts and there is art (with a capital A) The two things are often confused, and from the confusion arises many misconceptions and unseemly wranglings.

It may be admitted at once that the painter's or etcher's art is not the photographer's art save to a comparatively small extent.

Art, in this limited sense, consists in understanding one's tools as to their capacities and limitations, and in their intelligent use to express or embody ideas or things.

concourse of atoms," but the outward embodiment of divine and eternal law.

It is the artist's business to enter into the mind life of nature, human or otherwise, and to express the laws of that life in his work.

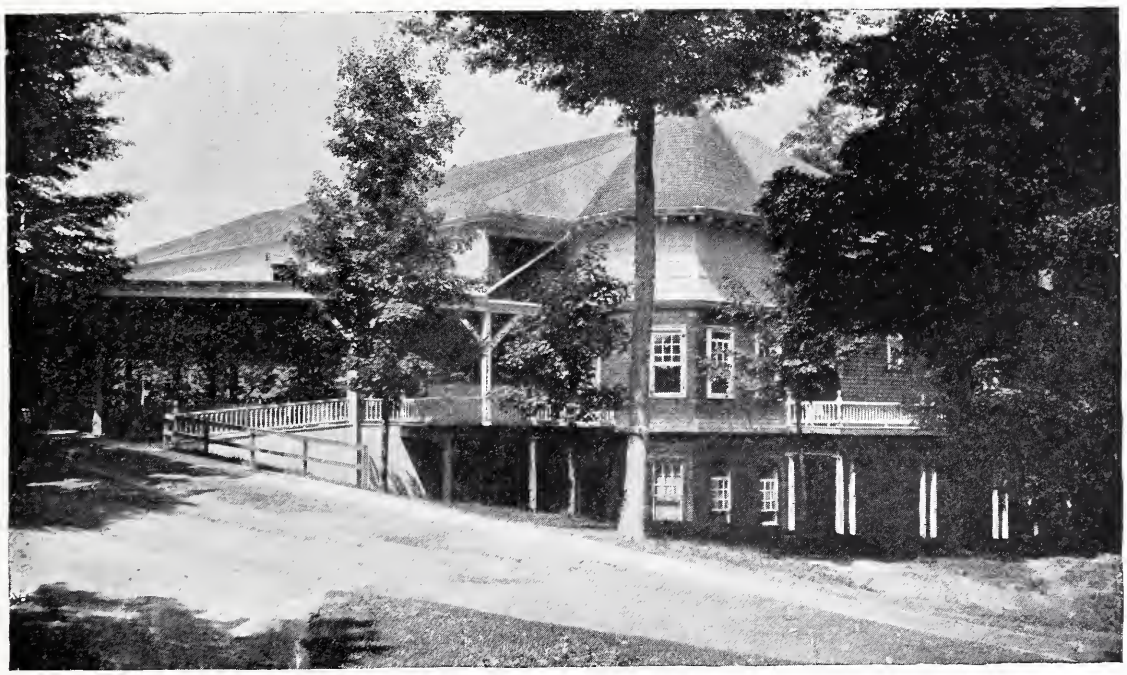
Using the word natural in this, to me, the true sense, it will be seen at once that all that is seen is not natural or artistic ; otherwise, there would be no room for the artist.

What is seen veils and misrepresents as frequently as it reveals the mind life of nature.

This veil, the artist must make as transparent as he can.

Here then, is the point, as it touches, maybe pierces ourselves.

If very little of what is seen is really natural, so



THE NEW AMPHITHEATRE, CHAUTAUQUA. (EXTERIOR.)

Thus, supposing a photographer understands his tools as well and uses them as intelligently as a painter does his. He has an equal right to be called an artist.

In the higher and narrower sense an artist is not simply one who has mastered a certain mode of expression, whether brush, pencil or camera, but who has besides a certain discernment of the truly beautiful and orderly, or, in other words, of that which is in the highest and best sense natural.

For, to me, what is really natural is really artistic, or real high art consists in giving a perfect impression of what is truly natural.

I am content with Shakespeare's definition of art, that it is, "To hold the mirror up to nature," if by nature is understood not simply "a fortuitous

little that if photographed can give really artistic results ; but, on the other hand, if what is photographed, is really natural in the highest and best sense and the photographer is technically good, it appears to me simply folly to say that the result is not more or less artistic.

In this sense also, then, the photographer may be an artist. He equally with the painter, may have the preception of what is natural orderly, harmonious, and truly artistic.

It is true that his means of expression, perfect as they are in their way, are indefinitely more mechanical than those of the painter, who with his cannot only select and, to some extent compose, but also interpret his subject.

In practice, of course, an artist, who is also an

up-to-date professional photographer, uses, with the utmost freedom, pencil, paint, stump-knife, etc., on negatives and prints, and practically, to a larger extent than is generally known, combines to produce a truthful and artistic photograph, the facility of execution afforded by the camera, with the higher and more individual means of expression given by pencil or brush.

But, for the very reason that he must stand so largely out of the way and let nature make her own mark, his work is likely to be artistic, presuming always, as insisted upon above, that the artist by instinct and training knows what is really natural and artistic in the sense in which I use these words. To deny this is to exalt a painter into a god, infusing a soul where none existed before, and making him the source and measure of his art and its inspiration.

This is directly contrary to the theory and practice of the greatest masters in art, who, in every age, are content to sit at nature's feet, learn of her, and draw all their inspiration from the Divine life she bodies forth.

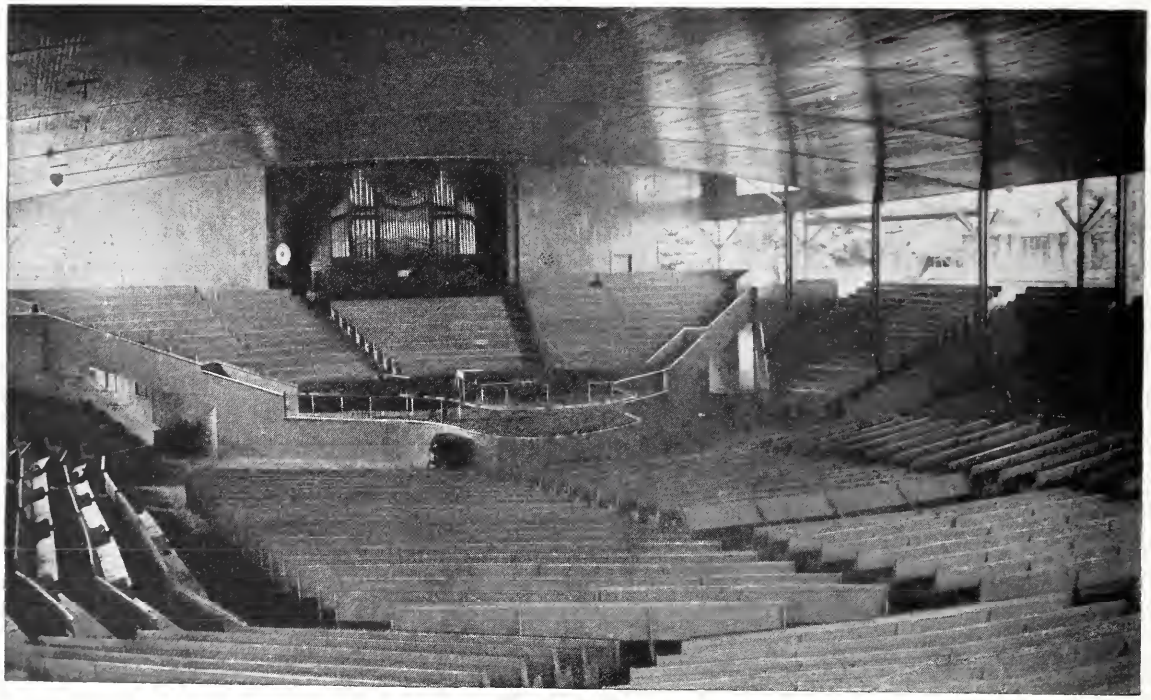
As photographers we may make it our glory rather than our shame to be more dependent than other artists upon what nature places before us. If we make a virtue of the necessity laid upon us, to seek out and to recognize that which is truly natural and artistic in the human and other subjects which serve as our models.

E.g. We cannot often select our models, but we can and should have a determining voice in their choice of dress, etc., as well as in the pose and lighting.

As to dress specially, it has seemed to me that if all photographers were trained artists and could put forth some combined influence they might exercise a strong and useful influence upon fashion in dress.

So far, fashion seems to be the outcome of irresponsible caprice, to say nothing stronger. On the whole, it cannot be said to defer in the least to the laws of health, order or beauty, and many of its dictates are in direct contrarity thereto.

It seems thoroughly disorderly that fashions should exist for the sake of dressmakers and sellers rather than for the dress-wearers and we, the dress takers.



THE NEW AMPHITHEATRE, CHAUTAUQUA. (INTERIOR.)

Can we not get our sitters to see that in dress, as in everything else, simplicity, fitness and beauty go hand in hand, and encourage them to strike for their rights in the matter.

This, I think, to be a useful and practical aspect of modern photography. The spectacle of its representatives posing as dress reformers is particularly edifying, and the rôle should fit them well.

Of course, in this, as in other matters, tact and judgment are required.

Human nature may be led, but not forced without injury.

It appears to me that, if we thoroughly understand the principles upon which we work, our material and our tools, and have a well-defined end in view, we can confidently recommend or suggest

this, that, or the other to our clients while carefully shunning dictation, arrogance or impatience.

Our use in life is like that of our masters, to minister rather than be ministered to. In other words, say those of the Spanish proverb, we must not be all sugar or men will suck us down; nor of vinegar lest they spit us out.

This means to us that, while in matters indifferent and which concern the sitter simply, we should content ourselves with suggestions in matters of principle, such as cutting of prices, extended credits, etc., we should take a very decided stand, but from principle not feeling, for it is neither right nor kind either to our creditors, debtors, or ourselves, to allow *e. g.* unlimited credit or to cut prices down to starvation point.

I am a firm believer in what are called the old-fashioned virtues, such as doing as you would be done by, rather than doing as you are done, punctuality, honesty, industry, sobriety, etc.

All these virtues can be exercised for their own sake and without necessary making one a straight-laced hypocrite—a worse alternative than bearing them altogether alone.

But if one does apply them to his business and knows and does his work thoroughly, I cannot but believe that he will have enough to occupy his own hand, perhaps others as well.

Another aspect of modern business life which also concerns us is that which has respect to what is broadly called advertising. Naturally, the work one sends out, whatever his employment, is his best advertisement, and almost every sitter should start a fresh circle of sitters, but in this pushing age it is not enough to depend wholly upon this. One's goods must be kept well to the front and displayed as publicly and attractively as may be.

To this end, it is by no means necessary to have a very large window or show at once hundreds of specimens, perhaps in varying stages of decadence.

A small number, tastefully displayed, and above all frequently changed, will be found far more effective.

It is a good plan to have the contents of the window out and changed more or less completely, say every week. It looks like business.

Before bringing this paper to a close, it may not be out of place to refer more specifically to the distinctly modern practice of retouching.

An extension of facilities for work on the negative or print such as have been already noted are naturally open to abuse, and may be used to the destruction of all truth and artistic effect. Photographs abound in which all the delicate modeling found in a well-lighted face, and all the soft semi-transparent appearances of flesh have given place to a smooth characterless texture more like that of marble or egg shell.

A sort of meretricious brilliancy is obtained, which is mistaken for high finish by the uneducated eye, whereas, in fact, it takes much more knowledge and intelligent care to so use the pencil that only those lines, details or accidental excrescences, which would be slurred over or suppressed by a painter shall be altered and removed than to smooth the whole face up into insipid monotony.

Greater facilities demand greater skill, and there is but little doubt that as time goes on and public taste is still further educated the ranks of photographers will be recruited from among men of taste and education, who are also artists by natural inclination, and a severe course of artistic and scientific training.

This should also mean that their labors will receive more generous appreciation and reward than is at present the case, for it is a curious fact that, in spite of the advance in public taste and consequent enlarged demands upon time, labor, skill and money to meet that advance, prices are at best only what they were twenty-five years ago, and in some places are actually very much lower.

This, however, is probably a matter which will right itself in time, at any rate, with those who think less of attracting custom by cutting prices than by doing in each and every case their (high) level best.

CHAUTAUQUA LETTER.

II.

As I promised in my first letter, I send herewith two photographs of the new amphitheatre, an exterior view and an interior, which for the benefit of your many Chautauqua readers I hope you will reproduce and print in The Photographic Times. The imposing building is not at all correctly represented by the cuts appearing in several publications; they are copies of the architect's design but give no adequate idea what the building really looks like. The rear of it is so completely hidden from view by huge oak, chestnut and elm trees, that only a portion of it is visible and photographable. Of the interior, as much can be seen in the cut as a wide-angle Morrison is capable to embrace. In width, the structure is the same as the old, but in length more extended, being 15 feet further down the ravine toward the lake, and 30 feet longer on the upper end, making the size, without

the offices, 174x168 feet. It is said to have sitting room for about 10,000 people.

School matters are going on slowly, but as the month of July has always been a sort of preparation for the more serious work in August, and new students are reporting constantly, we do not apprehend such falling off as other schools or classes suffer now on account of the Chicago affair. Beginners have commenced as usual with the Waterbury A and B outfit and the hand camera of the same name. Carbutt's orthochromatic and Wuestner's non-halation plates, developed with amidol and with para-amidophenol and hydrochinon, have given fine results. We have printed but very little, but what has been done is upon Bradfisch aristo, toned and fixed with our own bath. Blue paper, prepared according to Lesson XI., finds its customary advocates.

Different arrangements have been made in furfurnishing and fixing up our rooms. The large anteroom is used solely for offices and exhibition of the students' work; its walls have been draped with a light crimson fabric, upon which especially the platinum prints, of which many have been contributed by students, look very elegant and attractive.

The inner apartment is devoted to working, and an anteroom has been attached to the laboratory, a great convenience to all of us, doing away entirely with the constant cry of "shut the door," of former years.

A very curious but serious obstacle to success has presented itself this summer, the like of which we have never encountered in our long practice. By introducing a system of sewerage on the grounds, a more copious supply of water became necessary than the little reservoir on the hill could furnish, and a large force-pump, to take water directly from the lake, was set up. Whatever the cause might be, this pumped up water, when drawn from hydrant or faucet, flows bubbling and boiling milky white from air absorbed, and tiny little bells floating in it. When washing negatives or gelatine prints in this water the air bubbles settle upon the film, become enlarged by confluence, press upon the gelatine, forming pits, deeper depressions, and finally little holes. Our first day's work was entirely destroyed by this phenomenon. The professional photographer and a gentleman who has his own dark-room were greatly vexed, for they could not make a nice and clear negative with all precautions adopted. Alum, tannin and "Helmold" were of no avail, and after ten or fifteen minutes washimg the holes were there. At first I could not understand the character of the trouble, but found out soon, and with it the remedy. There is no other practicable remedy to free water from absorbed air than to let it escape by natural process,—by standing. A large hogshead containing 90 gallons was erected and filled up, after closing the class. In the morning a lump of ice reduced the temperature of the water, and it flows now as clear as crystal, and almost entirely free from air.

Those of our students who have given amidol a trial complain of feeble negatives, the same as we have read of in the Times a hundred times. Our usual advice, considerably less time of exposure and sufficient bromide, sets them all right. Dr. Andresen's cartridges are now liked very much.

Of the many collections of student's work we exhibit, we must mention, first, that of the Exchange Club, and mention it favorably. When we compare their pictures with those of last year, their general superiority in regard to artistic sentiment as well as technique becomes at once apparent. They have been well printed and toned from excellent negatives, some on albumen, others on gelatine or collodion aristo papers, and a few by the cyanotype process.

There are but a few among them not of satisfactory tone The Exchange Club has done exceedingly well under the new managers.

The general display of pictures comprises the work of students competing for the Chautauqua diploma, specimens by amateurs not connected with the school and photo-mechanical work.

Of the first we mention as the most attractive the very beautiful collection of platinum prints by Carpenter, of Ohio. The full length portrait of a lady, and several artistically selected landscapes are of the highest merit. We are pleased to see Mr. C.'s collection placed in the front rank.

W F. G. Geisse's work cannot very well be compared with the foregoing, on account of its entirely different character. In technics it is alike. There is a genre and a cattle piece, very beautiful, but as best of all individual pictures we must pronounce those of the "Jean Bart" and "Danidoff Tolskoi," French and Russian men-of war, that participated in the Columbian Naval Parade. Mr. Geisse has attained to the highest grade of the school. After a triennial, faithful and diligent adherence to our little institution he has earned the red sealed diploma.

We classify as equal to either of the above the collections of our Colorado friends, Neal and Woods. Beautiful work in every sense of the word. Beside the technical perfection, and the neat and accurate manner of mounting them, these pictures are probably more attractive than many

others on account of the wild, romantic and picturesque scenes in the Rocky Mountains represented.

Lucy Baldwin's work must be put in the same category. The portraits of children, pictures of dogs and landscapes are very fine, but most praiseworthy of all are her cloud pictures, not possible to be surpassed by the most skillful photographer.

Carl Ostberg, who, but two years ago, began in earnest to make photographs, shows with his collection what untiring energy and application can accomplish. We remember quite well the first samples he sent to us for criticism and compare them mentally with what he shows now. His portraits, landscapes, interiors and architectural pieces are excellent, but best of all is the portrait of a horse on an 8 x 10 plate.

Hooke, of California, shows a large number of wooded scenes and groves. Beautiful work, well exposed, developed and printed. There are also two instantaneous genre pictures made with the Henry Clay camera. As for the effect of instantaneous exposures, precision, sharpness and detail, these two little gems can hardly be excelled

Dr. Scott, of China, sends us very highly interesting pictures of Chinese idols, and views of the great wall dividing the celestial empire from Tartary.

I will continue to describe in future letters at least our most prominent exhibits, and report to you anything interesting that may occur.

Charles Ehrmann,
Instructor C. S. P.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 404.)

PART II.

The Manipulation of the Paper.

CHAPTER IV.

Toning Formulæ.

The acetate and 18 ounces of water are then added, and the whole is allowed to stand for about six hours. When required for use 1 ounce of the solution is added to half a pint of water, or the same quantity of an old filtered bath of the same kind. The stock solution will keep well. It gives rich purple-black tones. After use the bath should be filtered, and used to dilute the next bath.

The following formula is given by the makers for the Bradfisch & Pierce aristotype papers.

Gold Toning Bath.

Water	32 ounces
Bicarbonate of soda	25 grains
Acetate of soda	50 grains

Dissolve and add a few drops of gold stock solution (1 grain to the ounce).

Use distilled water if possible. Allow bath to stand one hour; then add 1 grain of gold in solution; place 25 to 30 prints in bath, and tone until the half tones and high lights are cleared, showing a bluish tint by transmitted light. Some of the red in the shadows must be left in the print, or the same will be over-toned. Never add gold when prints are in bath, or attempt to tone more than 25 or 30 prints in a batch. They should be kept under perfect control, and the amount of gold proportioned so as to tone in not less than seven or eight minutes. If prints are smoky, reduce the bicarbonate of soda to 25 grains. This bath can be used repeatedly by the addition of a small amount of bicarbonate of soda from time to time and gold enough to tone; as soon as it becomes discolored it should be thrown away. After toning, place prints in fresh water to which a little salt has been added, then rinse in one change of clear water and place in fixing bath.

Borax Bath.

Solution 1.

Borax	100 grains
Water	20 ounces

Solution 2.

Gold stock solution (1 grain to 1 drachm)	1 drachm

The advantage of this bath is that besides the gold only one other ingredient is necessary, and this is so simple and easily obtainable. Another method of using this bath is to get a large bottle, and put in it about one-third of borax, fill up with water, shake well, and let it stand. The borax solution thus formed is always in readiness if the bottle is replenished with water every time a quantity of it is used.

A great variety of tones can be obtained with this bath. It can only be used for one toning, however, but the old bath may be filtered and used instead of water for diluting the new bath.

Sulpho-Cyanide of Ammonium, Tungstate and Phosphate Bath.

Ammonium sulpho-cyanide	140 grains
Sodium phosphate	140 grains
Sodium tungstate	100 grains
Water	24 ounces

The tungstate or phosphate may be omitted and replaced by about half the quantity of the other

salt. Thus the phosphate may be replaced by the additional seventy grains of the latter.

When the various ingredients are dissolved some scraps of untoned sensitized paper should be put into the solution, and the soluble salts of silver from the paper allowed to attack it. It is then filtered and fifteen grains of chloride of gold dissolved in four ounces of water are added. The above bath was recommended by Pringle. With a toning solution of this kind, however, it is necessary to use a weak fixing bath, not stronger than 10 per cent.

For N. Y. aristotype paper Mr. F. W. Bock recommends

Chloride of gold	4 grains
Bicarbonate of soda	70 to 90 grains
Water	12 ounces

Phosphate of Soda Bath.

Distilled water	12 ounces
Sodium phosphate	20 grains
Gold chloride	1 grain

This bath should be used as soon as it is mixed, as it will not keep. It gives warm purplish tones.

Carbonate Bath.

Water	20 ounces
Carbonate of lime (chalk)	75 grains
Gold chloride	15 grains

After mixing the ingredients together, this bath should be left to stand for an hour. Its keeping qualities are fair and it gives brownish-purple tones.

Toning Bath for Sepia Tones.

Solution 1.

Water	50 ounces
Ammonium sulpho-cyanide	1 ounce
Sat. solution ammonium carbonate	15 to 20 drops

Solution 2.

Water	20 ounces
Gold chloride	1 grain

When these two solutions are mixed together a red color appears, which will in time vanish and leave the solution clear. When this happens the bath is ready for use, but not before. Tone to a deep purple, and wash thoroughly. On immersion in the fixing bath the picture will turn to a rich sepia-black color.

The gold bath we ourselves prefer to work with is a simple sulpho-cyanide one containing a very small quantity of this salt. It is made up with—

Ammonium sulpho-cyanide	25 grains
Gold chloride	3 grains
Water	16 ounces

The sulpho-cyanide is dissolved in the water and the gold added. On making this addition the solution will turn a reddish color. Shake it well until it is quite clear and allow it to stand a little while before using it for toning. The action of the bath is very rapid, so that only a few prints can be safely toned at one time. They are examined by transmitted light and removed as soon as the brown shade of the dark portion has been changed.

Walter E. Woodbury.

(*To be continued.*)

ON A FAILURE OF THE LAW IN PHOTOGRAPHY THAT, WHEN THE PRODUCTS OF THE INTENSITY OF THE LIGHT ACTING AND OF THE TIME OF EXPOSURE ARE EQUAL, EQUAL AMOUNTS OF CHEMICAL ACTION WILL BE PRODUCED.

[A Communication to the Royal Society.]

It has been generally assumed that, when the products of the intensity of light acting on a sensitive surface and the time of exposure are equal, similar amounts of chemical action are produced, and, with the ordinary exposures and intensities of light employed, such, no doubt, is practically the case, and any methods of measurement hitherto practicable have been insufficiently delicate to discover any departure from this law, if such departure existed. In some recent experiments, however, I have discovered that this law breaks down under certain conditions, and I think the fact worthy the attention of those interested in the subject, since it is possible that these conditions may arise with other experimenters. Quite lately I have described the method of comparing the photographic value of sunlight with that of candle-light (*Photographic Journal*, June, 1893), which was as follows: A beam of sunlight, after three reflections from plain glass mirrors, was admitted through a narrow slit to sensitive bromide paper stretched round a drum of about four inches in diameter. The drum could be caused to rotate round its axis at any speed up to about sixty revolutions per second by means of an electro-motor. A small exposure with this light was given to the paper during the rotation of the cylinder. Subsequently an amyl-acetate lamp was placed in position at any convenient distance from the same slit, and a fresh portion of the same sensitive paper exposed to its action during a much longer period, the rotation being continued as before. The slit was next replaced by a small square aperture of some half-inch side, and further portions of the same paper exposed to the amyl-acetate light at the same distance, for varying or unknown exposures, with the drum at rest. On development the paper showed three images, a narrow band of deposit of the width of the slit caused by the sunlight, a second band of the same width due to the light from the amyl-acetate lamp, and a third row of squares of varying blackness of deposit due to the different exposures given with the drum at rest.

If the width of the slit be actually measured, the band formed by the amyl-acetate lamp is evidently superfluous, supposing the usually accepted law to hold good under all circumstances, as by measuring the blackness, or rather want of whiteness, of the different squares, and using them as ordinates to the abscissæ which were the times of exposure, and drawing a curve through them,

the blackness produced by the sunlight could be referred to that produced by the light of the amyl-acetate lamp, and its equivalent value in terms of the latter light be calculated. The band of deposit produced by the amyl-acetate lamp was introduced as a check, for its blackness could also be referred to the curve, and the width of the slit be calculated from it. On making such calculations I was surprised to find that in every case the calculated width of the slit was always considerably less than what it was in reality, the difference being far beyond that which would be caused by any error in the measurement. This led me to commence an investigation into the cause of the difference, and what has already been carried out is sufficient to show that there is a failure in the usually accepted law. It may be pointed out that, if it held good, the sum of any number of very short exposures should be equivalent to a single exposure for the same length of time.

The experiment which naturally suggested itself was to expose a sensitive surface to the action of the light of an amyl-acetate lamp passing through a slit as before, the drum on which it was stretched being caused to rotate at high and low speeds, and also to place on the same paper a scale of exposures with the drum at rest. These were all developed together. An example of one of many experiments is given as an illustration.

The circumference of the drum with the paper stretched around it was 12.25 inches. The width of the slit was arranged to be 0.012 inches. The amyl-acetate lamp was placed 2 feet from the slit, and a rotation of 30 per second was given to the drum for one exposure and 1 per second for a second exposure. In the first case the time of exposure during each revolution was $\frac{0.012}{12.25} \times \frac{1}{30}$ second, or about 1/30,000 second.

The sum of the exposure during 20 minutes was thus 1.176 seconds.

In the other case the exposure was

$$\frac{0.012}{12.25}$$, or about 1/1000 seconds.

and the sum of the exposure was, as before, 1.176 seconds. Thus the first individual exposures had only $\frac{1}{30}$ of the duration of the second exposures, though in the aggregate they were the same.

A scale of blackness was made on the same paper, through a squrre aperture, without shifting the lamp, the exposures being one-eighth, one-quarter, one-half, 1, 2, 4, and 8 seconds. On developing it was apparent to the eye that the first band was much lighter than the second. The scale and blackness of the bands were measured accurately, and the times of exposure which had been given to each band, on the assumption that the law enunciated held good, was calculated and found to be for the first band 0.6 seconds, and for the second band 0.91 seconds, instead of 1.176 seconds, which was really given in all. Another example is where the slip was opened to 0.11 inches, and the time of exposure reduced from 20 to 10 minutes. It was found that in this case the exposures given on the same assumption were 3.7 seconds and 5.28 seconds, the real exposure given being 5.36 seconds. The last experiment shows that if the slit had been slightly wider, or the rotation slower, the law would have been approximately obeyed.

Another experiment was made by throwing an image of the crater of the positive pole of the electric light on a hole bored in a plate about $\frac{1}{20}$ inch in diameter by means of a lens, and allowing the emergent beam to fall on the slit and paper, the drum being made to rotate as before. The same kind of results were obtained.

As it might be thought that this difference was caused by some action other than chemical, another series of experiments was undertaken. In these different sensitive surfaces were employed in order to eliminate any possibility of the effect being due to any phosphorescence of the paper, though none could be detected. Plates were held stationary and exposures made by admitting light to portions of them through slits of known angular aperture, cut in a disc which could be rotated at any desired speed. Similar results were obtained to those already described. The quickest rotation gave the least density. It may be remarked that the more sensitive a surface is to radiation the less marked are the differences observable for the same speeds of rotation. This is what might be expected.

As an outcome of the experiments so far made, it seems that, when exposures less than $\frac{1}{1000}$ second are made on a sensitive surface, and the source of illumination is an amyl-acetate lamp (Von Altneck's) placed 1 foot from the sensitive surface, the law quoted *ante* fails.

The question of a very low intensity of light acting and of the sensitiveness to different spectrum colors is now occupying my attention.

Captain W. de W. Abney, C.B., F.R.S.

A NEW DEVELOPER FOR GELATINE DRY PLATES.

(*Continued from page* 408.)

Development.

If the preparation is complicated, the development is correspondingly simple, and it is practicable, with a little experience in its use, to obtain results that are unapproachable in density, and can only be equalled in detail by skilful manipulation with pyro.

For instantaneous and under-timed exposures the developer is used without dilution; if desired, the action may be restrained by the addition of water. A somewhat larger quantity of the developer is required to properly cover the plate, owing to the viscidity of the emulsion.

Two trays are used in development, the larger filled with cold water, in which the smaller tray containing the developer partly floats. The negative is placed in the developer, and disappears from view beneath the opaque emulsion; the tray is rocked until the picture comes up. It is only necessary, during the development, to occasionally rock the trays, the viscidity of the developer preventing unequal chemical action or the settling in spots upon the film of any sediment.

The progress of the development is judged by the color and appearance of the plate when viewed by transmitted light; the low lights and shadows are indicated by white spots in the film, which become yellow-brown as the action proceeds; the development is stopped when the plate is opaque and a walnut-brown color throughout.

The negative is thoroughly washed, and the surface of the film is rubbed with the hand under a stream of cold water to remove the adhering emulsion; it is then fixed as usual.

When working with plates that have received nearly equal exposure, the time of development furnishes the best guide in obtaining the desired detail and density. There is a wide margin in time when instantaneous views and extreme under-exposures are developed. A good negative may be obtained in six to twelve minutes; if the development be prolonged to half or three-quarters of an hour, no harm is done, save that the negative, from increased density, will print very slowly. When desired, the development may be prolonged for one or two hours by changing the water in the outer tray, so that the developer is kept cool and the film uninjured.

This developer may be used repeatedly without exhausting its power or staining the film.

Intensification.

Negatives that have undergone development may be intensified before fixing. For the primary development there is probably nothing better than pyro and soda; no bromide is used, and the development is conducted so as to bring out all the detail possible, keeping back density in the high lights, in order that all parts of the image may be nearly uniformly dense. When no more detail can be obtained, the negative is thoroughly rinsed in a stream of cold water and the secondary development conducted with any of the argentic developers, preferably with No. 1. The action is quite rapid, and should be carefully watched, lest the negative be over-intensified. The time required for secondary development is from three to fifteen minutes. The best guide is the appearance of the plate when viewed by transmitted light; the development is finished when the negative becomes brown and opaque, without any light spots in the film. It is then immersed in cold water, the surface of the film is gently rubbed beneath the water with the hand or with absorbent cotton, to remove any adhering emulsion, and the negative is fixed with hypo in the usual manner.

In this secondary development the action of the argentic emulsion appears to be an electrolytic building up of the image in metallic silver. This view is confirmed by the fact that a negative after fixing and washing may be slightly intensified by immersion in the argentic developer. In this case the electrotypic action is very slow, and could probably be made more energetic by increasing the sensitiveness of the emulsion, and indicates that it would be possible to make an argentic intensifier for negatives after fixing, by employing a very sensitive emulsion with ferrous sulphate as a reducing agent.

(To be continued.)

DEATH OF WILLIAM JOHNSON.

We regret to announce the death of William Johnson; a fatal accident which occurred on Friday morning, the 21st inst, suddenly took him from amongst us.

All the old customers of the Scovill Manufacturing Co. and The Scovill & Adams Co. will remember "Billy."

He was born in New Jersey, came to New York when nine years of age, He was a constant attendant at Zion's Church, corner of Leonard and Church Streets, where H. B. Claflin's store is at present. Having a very fine voice he was admitted to the choir and was for a number of years leading tenor singer. For thirty years he was in the service of a well-known New York dentist and became quite proficient in the art of dentistry.

By his colored friends he was soon called "Dr. Johnson," which name stuck to him for the remainder of his life.

Thirty years ago he entered the service of The Scovill Manufacturing Co. in Beekman Street. He was a conscientious, honest and faithful workman, obliging and affectionate and could not be made to speak ill of any one. He probably knew the customers of The Scovill Manufacturing Co. and The Scovill & Adams Co. as well as any one connected with these firms and his memory for names was remarkably good.

The funeral service was held in Zion's Church and he was buried in Cypress Hills Cemetery. There was a large attendance, The Scovill & Adams Co. were well represented, his associates in the store sending him a floral pillow.

There is not one among us who will not miss "Billy." Full of quaint humor and harmless chaff, he brightened up many a moment in the dull monotony of commercial life.

We wish to extend our sympathies to his sorrowing friends and relatives.

W. I. A.

Correspondence.

To the Editor of The Photographic Times.

Sir: Such of your readers as have had aristo prints spoiled by the dirt now present in the Croton water will find the following simple formula a useful one:—

To each gallon of water add

Powdered alum	2 grs.
Carbonate of potash	6 "

This will precipitate all sediment and the water, if filtered lightly through cotton, will be crystal clear.

James Reuel Smith.

To the Editor of The Photographic Times.

Dear Sir: I see a notice in your Convention number, which is by the way a fine piece of Photographic journalism, of the success of an English writer in producing reversed negatives by over-exposure under the original. You may remember that I contributed an article on this subject to your Convention number for 1890. The impossibility of getting clear, transparent shadows, as the secondary negative is always dense, render it of little value for photo-engraving reversals, and render it useless for producing lantern slides directly from other slides, although I have spent much time in trying to overcome the fog with this end in view; but for silver printing the process makes very satisfactory negatives, I having employed it several times with success in actual work.

The enclosed pictures are from an original and a reversed negative that I made in my experiments in 1890. I then found that the best results were obtained with a thickly coated plate, which I made myself. This reversal was made on one of them.

Yours,

J. W. Barbour.

Chambersburg, Pa., July 19, 1893.

[The two pictures accompanying this letter are all that can be desired.—Ed.]

Notes and News.

The British Convention has been voted a distinct success. Can the same be said of the American?

Are you going to take part in THE PHOTOGRAPHIC TIMES competition? We want everyone of our readers to compete.

No living man has discovered so many comets as Professor Barnard of Lick Observatory, who has sixteen to his credit.

We regret to announce the death of Mrs. Cook Ely, wife of the well-known photographer of Algona Street, Hartland, Wis. She was a lady greatly beloved by all. Our sympathies are extended to the bereaved family.

The proprietors of *The Canadian Photographic Journal* are fortunate in having secured the services of Mr. W. Ethelbert Henry, C.E., as associate editor to that high-class magazine. Mr. Ethelbert Henry is well known as a clever writer and a thoroughly practical man, two accomplishments that are rarely found combined.

It is with the deepest feelings of sorrow that we learn of the death of Mrs. John R. Clemons, of Philadelphia, wife of the well-known manufacturer of matt surface and leatherized salt papers. Mrs. Clemons had been a great sufferer for many months, and her departure was therefore a well-earned release from pain. She and her husband had lived most happily together for over forty years. We extend our sincere sympathy to the afflicted husband, and the numerous friends of the deceased.

"Photography is now used at the Royal Mint," says the *News*, "for the purpose of recording the temperature of blast furnaces. A thermo-electro pyrometer is employed, the spot of light from the mirror being received on a revolving drum covered with sensitive paper. The curves thus produced give a record of variations in the temperature of blasts, and, by watching these curves, a greater regularity of work is ensured. The application is the idea of Professor Robert Austin, who has practically worked it out."

Check Patterns on Half-tone Prints.—"A good many process workers" (says *Process Work*) "have no doubt puzzled their heads over the fact that when they attempt to reproduce a print from a half-tone block by the half-tone process, there is a peculiar chequered appearance all over the picture. This has been variously ascribed to the grain of the paper, to the print on the back of the paper, and, in fact, anything but the right cause. It is really due to the superimposing of one set of parallel lines upon another, and so producing the effect of the magic-lantern chromotrope. Any one who has a screen and a half-tone negative, can soon test the matter by puting the screen and the negative together, and holding them up to the light. You will then see the check pattern that has troubled you; or again, if you lay your screen over a half-tone print, the same thing will be visible. But observe further, if you turn the screen circularly, the pattern will gradually become smaller, and when the lines of the screen cross the picture at right angles, the pattern has disappeared altogether, and a rather pretty mezzotint appears. The application is obvious."

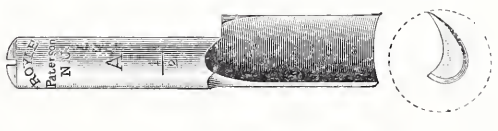
The Editorial Table.

From Mr. H. J. Newton we have received a number of fine prints with a rich black tone obtained upon his monograph paper, particulars of which he gives in the forthcoming "American Annual of Photography," for 1894.

From Mr. W. G. Stuber we have received some remarkably fine pictures taken with the Henry Clay camera upon non-halation plates prepared by the Stuber Dry-Plate Co., Louisville, Ky. These admirable little pictures speak well of the capabilities of the camera and plates in the hands of a competent worker.

Messrs. W. P. Buchanan, of 1226 Arch Street, Philadelphia, have introduced some neat novelties for professional photographers. Musical dolls for amusing children while taking their photographs, apple blossom vines which can be used in many different ways to form attractive pictures, large butterflies for ornamenting, and bouquets of artificial flowers. We advise all professionals who wish to keep up with the times to possess these articles as additional attractions to their customers.

From Messrs. J. Royle & Sons, Paterson, N.J., we have received particulars of their new Routing Cutters. These cutters, we are informed, are made of the finest quality of steel obtainable, being hardened by special appliances, have an unvarying grade of temper, and cut freely and rapidly. Each cutter has its designating letter, together with its size, stamped on the shank, the standard being the diameter of the circle it cuts, as explained by the dotted lines in the accompanying illustration:



The St. Louis Camera Club send us a list of annual field day prizes offered for the best work in different classes. Particulars can be obtained of the Secretary, Mr. J. F. Hickman, Room 908 Wainwright building, St. Louis. Mo.

"Town Talk" is a smart little paper published at 251 Market Street, Newark, devoted to general topics of interest of the week. There are some very amusing illustrations in it, many of which are reproduced by photo-engraving processes.

L'Annuaire General de la Photographie, published by Messrs. Gauthier Villars et Fils, 55 Quai des Grands Augustins, Paris. This annual is published under the auspices of *L'Union Internationale de Photographie* and of *L'Union Nationale des Sociétiés Photographiques de France.* It contains a mass of useful information regarding the French Photographic Societies, some excellent illustrations, a summary of all the latest improvements, and a number of well-written articles on various interesting subjects by the best French authors.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.
2. The camera must be held in the hand during the exposure.
3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.
4. The prints must be mounted but not framed
5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

Queries and Answers.

102 A. B. C. wants to know why plates immersed in alum before fixing show after drying a white deposit on the surface. He has failed to remove it by any means known to him.

102 *Answer.*—When alum and hyposulphite of soda come together, they mutually decompose each other, forming hydrate oxide of aluminium, evolving sulphurous acid and precipitating sulphur. When after alumenizing, and before fixing, the plate is not thoroughly washed the same reaction takes place.

If the gelatine has not shriveled up under the action of alum, such negatives may still be saved by wiping them repeatedly with a tuft of cotton moistened with alcohol.

Finally, varnishing with S. P. C. Crystalline Varnish helps to destroy the marks left by the alum.

103 L. I. No. 29 finds some brands of plates to fix much slower than others, all conditions being alike.

103 *Answer.*—An emulsion containing 5 per cent. or more of iodide of silver to the bromide fixes much slower. Nevertheless the slower fixer may be just the plate you want. Do not refuse it on that account.

104 McG. is surprised we recommend so warmly the compound called Helmold's mixture. He finds the substance to settle upon the film as a sort of grit, giving endless trouble.

104 *Answer.*—Filter the solution of Helmold's mixture.

105 CLARA P. S.—What is a good test for iron suspected to be contained in water?

105 *Answer.*—Add a pinch of pyrogallol to a pint of the suspected water. Iron present will be indicated by a bluish color.

106 BLACKBURN has used non-halation plates and is much pleased with them, but finds them to be very liable to frill in this hot weather. But he has encountered another difficulty with these plates; after the plate has been subjected to the alum bath he has found that often the image on the plate is doubled, looking very much like a moved print.

106 *Answer.*—It is well known non-halation plates are coated with two, and repeatedly with three, emulsions of different property and quality. If, then, for example, the top coating of highly sensitive emulsion should show a tendency to frill, and the plate is immersed in an alum solution, and the lower strata are of harder gelatine, the superstratum will contract as well as harden, while the strata below it are not affected. Through contraction the image of the top film becomes somewhat reduced in size, and so it occurs that the image is doubled as described by our correspondent.

Blackburn's plates were not *Wuestner's*, evidently. They have responded to all demands under all circumstances.

107 C. F. H., Carlisle, Pa.—In THE TIMES of July 14th, p. 358, in "Rule 1 for Competition in Hand-Camera Work," "printing," "toning" are mentioned. I do not suppose this would exclude processes in which "toning" does not specifically enter, as in permanent bromide paper prints, etc.

107 *Answer.*—Certainly not. The only stipulation is that the work, whether developing, toning, or any other process, is entirely the unaided work of the competitor.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Managing Editor.
CHARLES EHRMANN, WALTER E. WOODBURY. } Associate Editors.

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Fifteenth.—Because all its advertisers are endorsed by the publishers as being worthy of patronage.

Sixteenth.—Because no advertisement in any way objectionable is admitted to its pages.

Seventeenth.—Because all the leading manufacturers of and dealers in photographic goods are represented in its advertising pages.

Eighteenth.—Because its advertisers receive more returns from ads. in it, than in any other photographic publication. (An unsolicited testimonial from a leading photographic dealer.)

Nineteenth.—Because it is not an experiment, having reached its 22d year.

Twentieth.—Because, in short, it will pay you to advertise in it.

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FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee, Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

PHOTOGRAPHERS, ATTENTION.—I will make you fine crayon portraits at the following low prices: 14 x 17, $1.50; 16 x 20, $2.25; 18 x 22, $2.50; 20 x 24, $3.00. Give me an order and be convinced.
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FOR SALE.—Rochester Optical Co.'s 4 x 5 Universal Camera, tripod case, Gundlach lense, Prosch shutter; good as new. S. C. FAY,
64 S. Washington St., Rochester, N. Y.

FOR SALE.—6½ x 8½ Blair Improved R. B. Camera; good as new; price, $20.00. E. A. DARLING,
P. O. Box 439, Providence, R. I.

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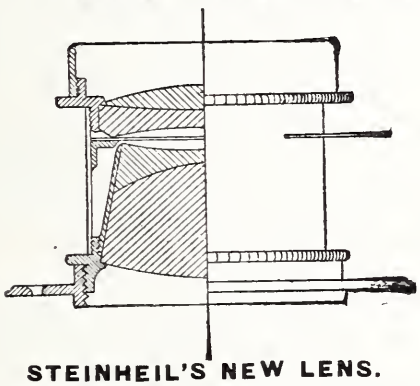
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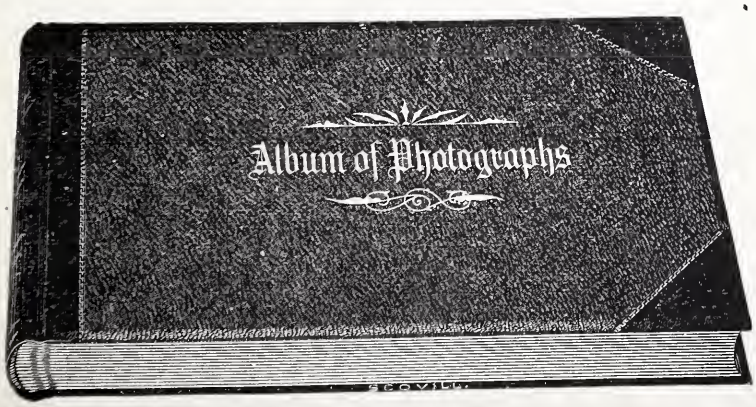
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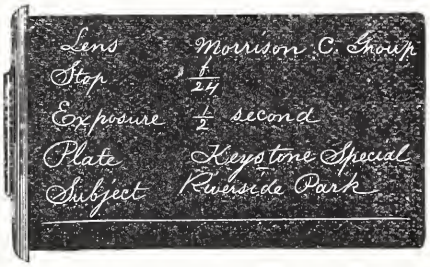
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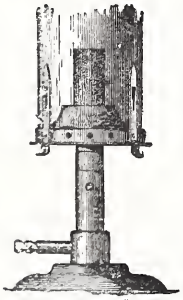
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In the pleasure or excitement attendant upon picture-taking, holders slides have been so changed about that the note-book afforded no clue to their identity. All photographers, whether professional or amateur, who have in time past puzzled their brains in the endeavor to solve such vexatious questions as these—

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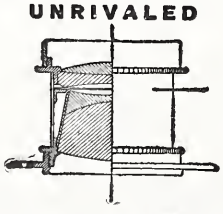
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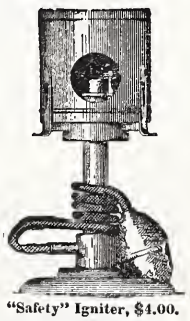
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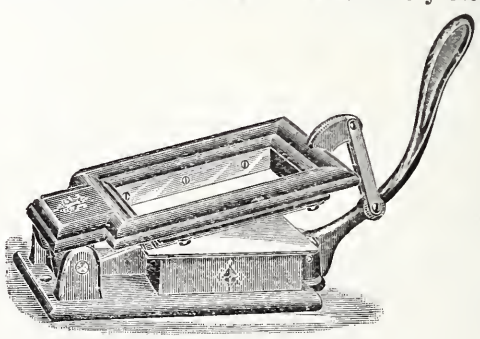
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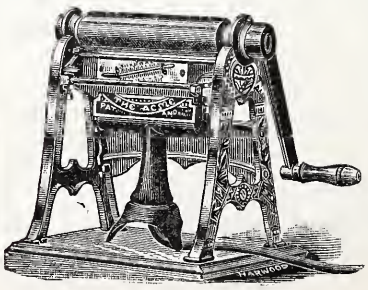


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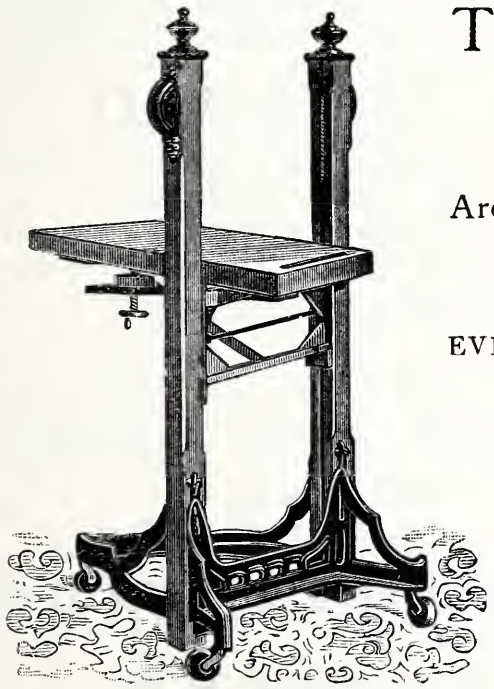
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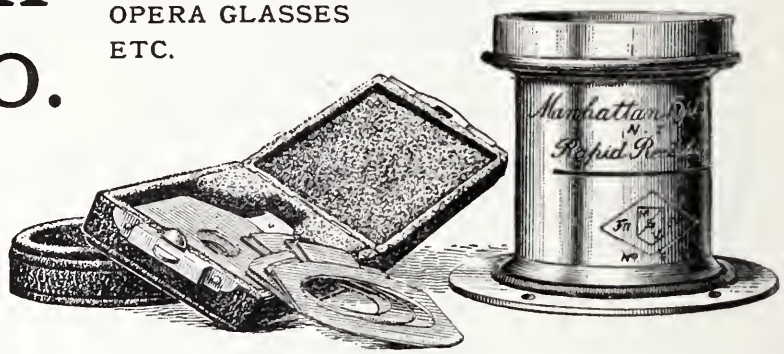
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(SEE PAGE 358.)

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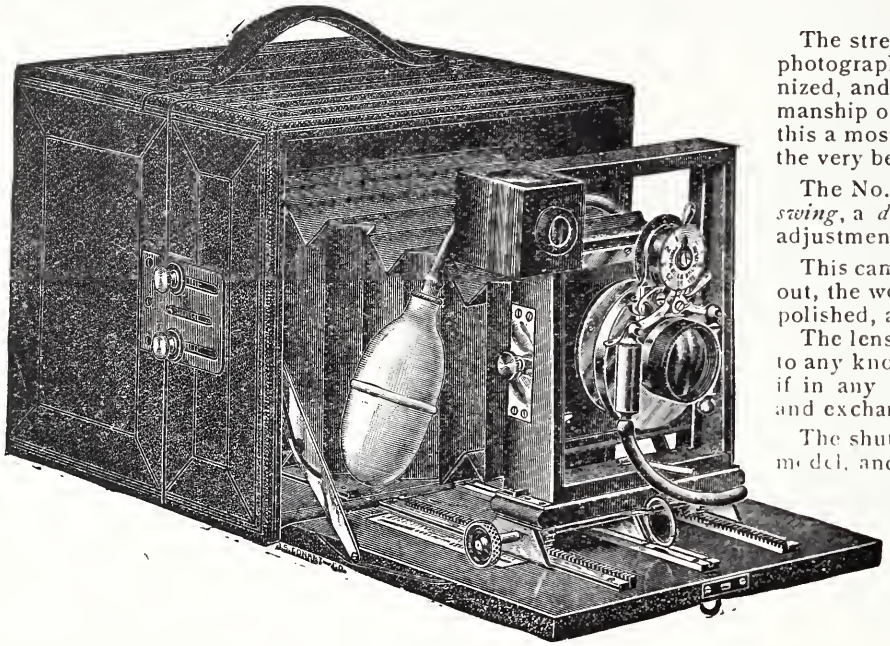
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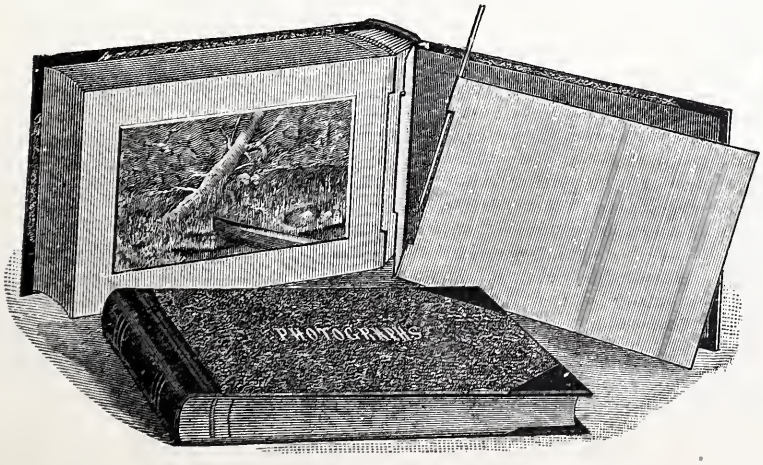
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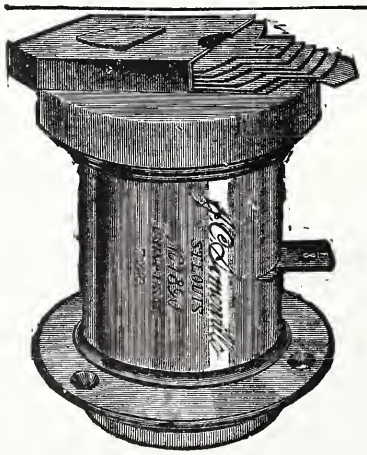
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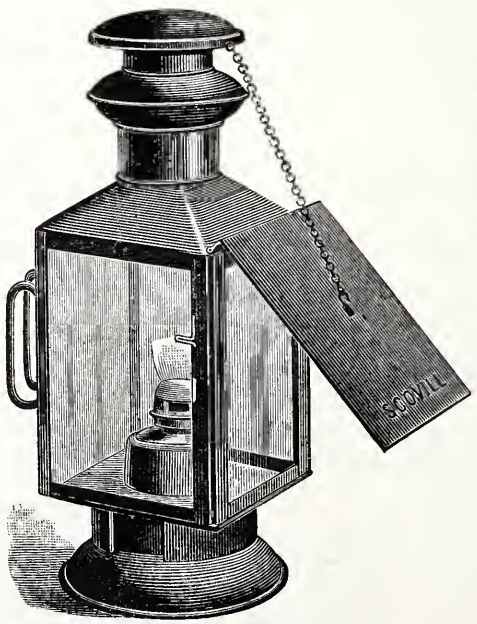
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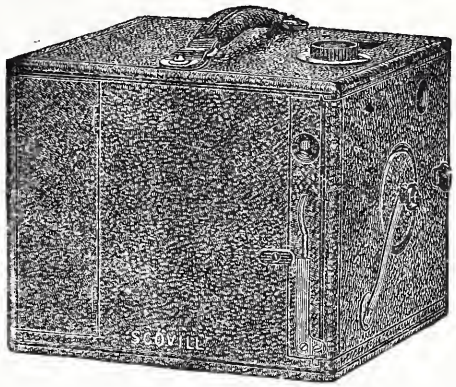
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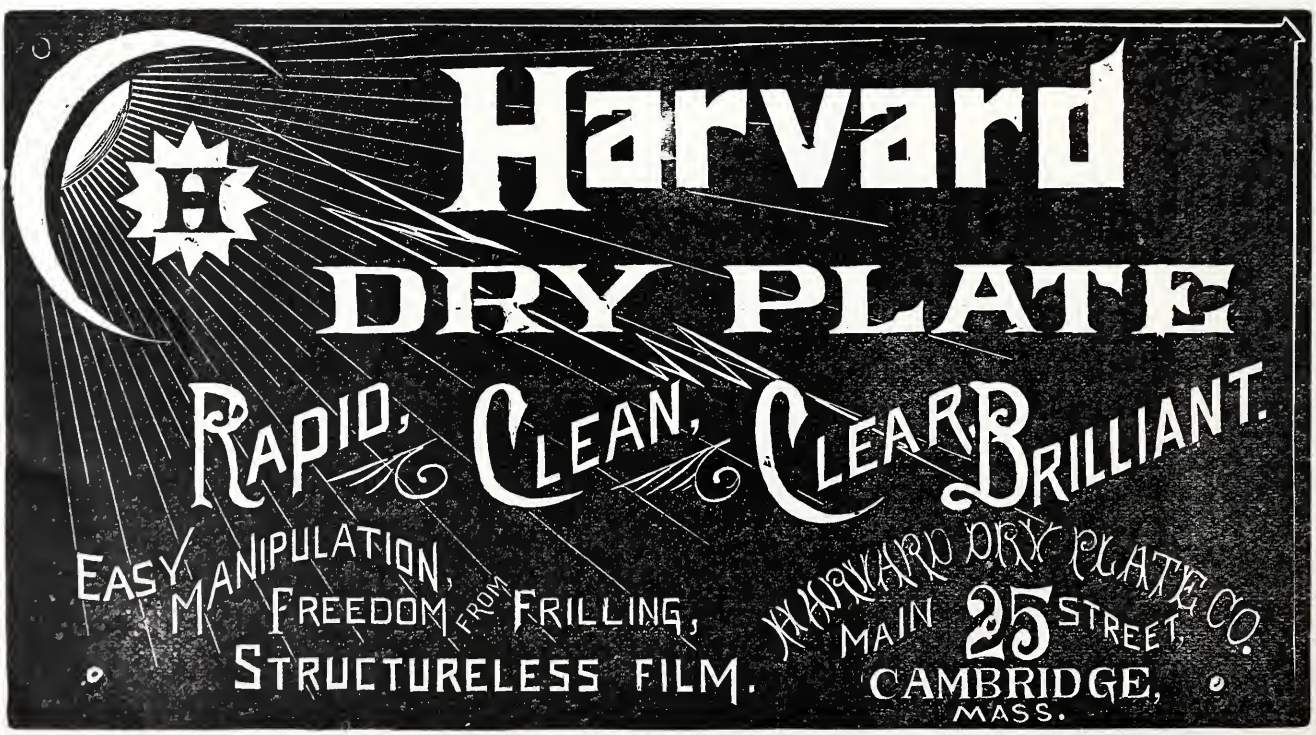
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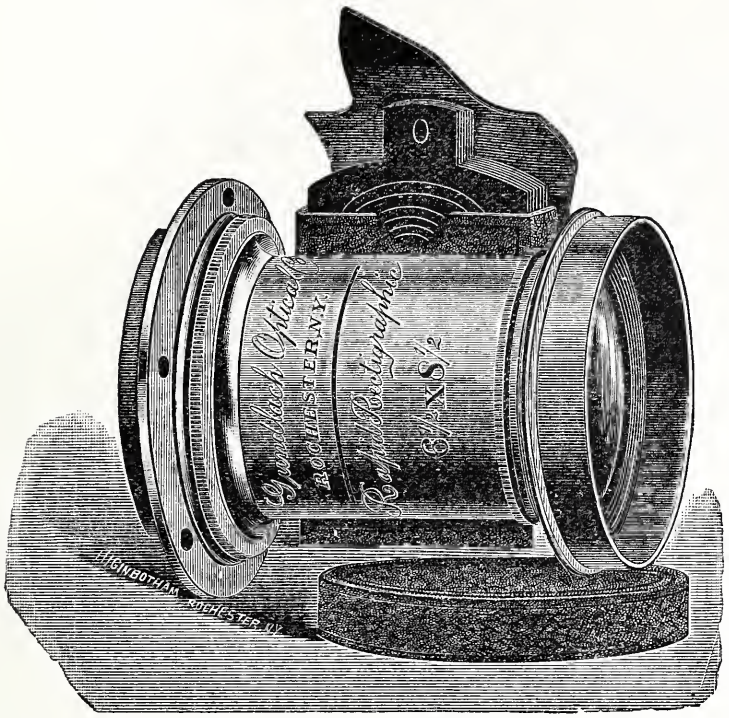
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"What Jackson Says."

DENVER, COL., Feb. 13, 1893.

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GENTLEMEN: Yours of February 12th is at hand. We send you to-night by express, a dozen 17 x 21 views, mounted, and two panoramas. We would have preferred to have had a little more time, and to have printed these expressly for you, but even as it is, I think you will find the selection a very good one. Nearly everything we have made lately has been on Isochromatic plates, and these, it is almost needless to state, have given us the most complete satisfaction. We now consider them indispensable for all outdoor work.

Yours truly,

W. H. JACKSON.

From the World's Fair.

Extract from a letter from Mr. B. W. Kilburn, who has the exclusive privilege of making stereoscopic views at the World's Columbian Exposition:

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I did not lose One plate in Two Hundred and Ninety-two exposures, all Cramer's, from any fault in the plate, while in Chicago this last time.

Yours very truly,

B. W. KILBURN.

Official Photographer.

WORLD'S COLUMBIAN EXPOSITION,
DEPARTMENT OF PHOTOGRAPHY,
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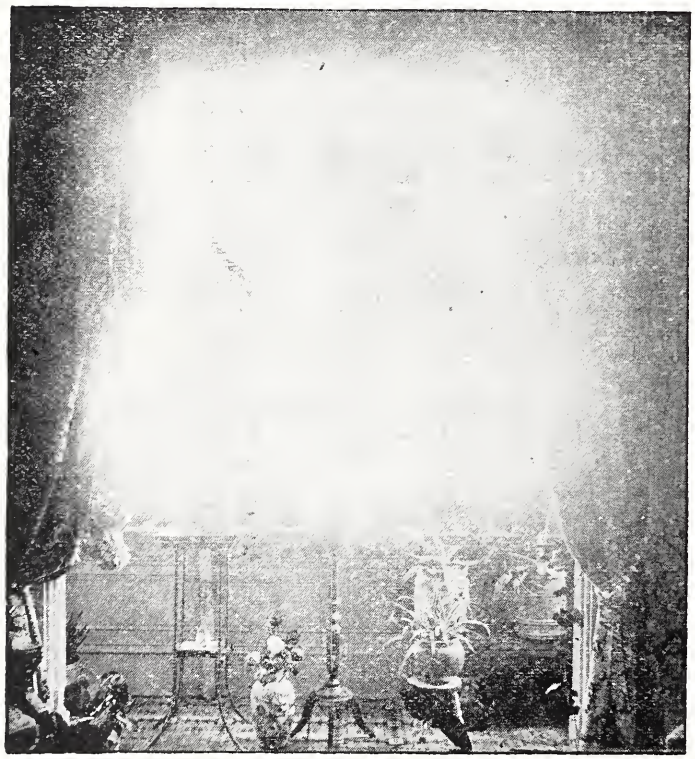
Very truly yours,

C. D. ARNOLD.

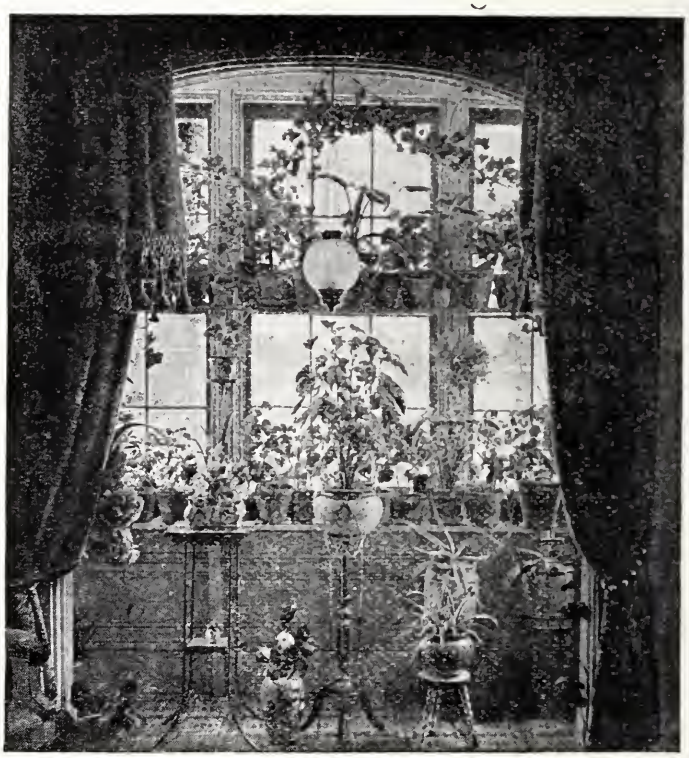
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(Signed) W. H. ALLEN.

It Pleases Customers.

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Gentlemen :—I take pleasure in informing you that since I have used your Solio Paper I have no trouble whatever in pleasing my customers.

I have used all kinds of Collodion and Gelatine paper, but none gives the satisfaction like your Solio.

My printers have no trouble in working it.

Four weeks since I stopped using albumen altogether and am using the Solio entirely.

Very respectfully,

(Signed) P. S. RYDER.

Twenty to One.

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Have Used It a Year.

CLEVELAND, OHIO, July 12th, 1893.

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Yours truly,

(Signed) E. DECKER.

Has Not Changed.

KANSAS CITY, MO., May 27th, 1893.

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Gents :—My street display was placed there last Thanksgiving day—has not been changed since. Sun shines on same each forenoon and through all the changes of heat and cold, etc., I cannot see that they have changed a particle.

Hastily,

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NAVAL REVIEW

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. AUGUST 11, 1893. No. 621.

THE NAVAL REVIEW.

OUR illustration this week is a collection of instantaneous photographs taken during the recent naval review in this city. Mr. E. Edwards was particularly fortunate in securing some good pictures, which will serve also as mementos of this memorable event. They are reproduced by the Photogravure Co.

THE PERMANENCY OF GELATINO-CHLORIDE PRINTS.

GELATINO-CHLORIDE or aristotype prints have now become so popular that it would be well to turn our attention to their probable permanency.

The process may be said to be so new that no real idea of the lasting qualities of aristotype prints can possibly be obtained for many years to come. Our experiments with this class of paper, however, date back eight years, and we have in our possession many prints made upon it and which have been produced in different ways and subjected to various treatments. The conclusion we have come to is that, *under certain conditions*, gelatino-chloride pictures are as reasonably permanent as could be expected, giving a liberal interpretation of the word, and far more so than albumen prints. The reason of their superiority in this direction over albumen pictures may be partly due to the unstable nature of albumenate of silver which is formed in the latter process. In aristotype paper this is done away with, and silver citrate or acetate of silver substituted. Much, however, depends upon the manipulation; this we find clearly proved by the prints before us. Some are perfect and others hopelessly faded. In toning, some baths give prints far more lasting than others. As a general rule, we found the best in this respect to be the baths containing the most gold, so that it is evident that economy in this direction is not by any means advisable. Much has been said about the poor lasting qualities of pictures toned and fixed in a combined bath. Our experiments do not agree with such statements; but there is one thing we are led to believe, and that is that by the misuse of this bath many rapidly fading pictures are made. The reason is not far to seek. The toning and fixing actions do not always work together, so that it often happens that a print is removed before it has had any chance to get fixed, although the tone desired has been obtained. Further, when the toning action becomes weak, an addition of more gold is made, but usually the fixing salt is forgotten. We are inclined to believe that combined toning and fixing baths containing lead nitrates will not give such lasting results. Our experiments bear us out in this, and we regret to find so many formulæ recommending it. We think it a mistake, and one that will be found out sooner or later. Many of the combined baths contain alum, which hardens the film and considerably retards the dissolving action of the hypo. In insufficient fixation undoubtedly lies one of the chief causes of fading. We would recommend fifteen minutes in a bath not weaker than 3 ounces of the salt to 20 ounces of water. After this the prints should be removed to a fresh bath of the same proportions, so as to insure solution of the otherwise insoluble hyposulphite of silver. This method of fixing is the only scientifically correct one, although but little employed, and there is no doubt, and our experiments lead us to this conclusion, that far greater permanency is secured.

After fixation we come to the elimination of the hyposulphites. Much has been written upon the necessity of prolonged washing; some go so far as advising one to leave the prints in running water all night. This is a great mistake. Of course, it is necessary to thoroughly eliminate the fixing salts, but this should be done as rapidly as possible, for the longer gelatino-chloride prints are washed

the less permanent are they likely to be. The opinions of practical photographers certainly seem to be that the gelatine prints are far superior, in regard to permanency, when exposed in the show-case than albumen prints, and this is probably the severest test, as the action of the sun's rays for a month will have a more powerful effect than twenty years under ordinary conditions. Two hours in many complete changes of water is all that is necessary. The completest way of elimination is to remove each print from the water, lay it on a glass and squeegee both sides, and place it in fresh water for a time; then repeat the operation. But this is a tedious method, and impracticable where a large quantity of prints are concerned. What we would wish to point out is the necessity of changing the washing water often and completely. As an illustration of the advantage of this over a running stream, make a small experiment. Take a small bottle of dye and empty it into a tub of water until the whole is colored; empty the tub and refill with water. It is perfectly clean at once; but let a stream of water run into the tub of dye-water, and you will find that perhaps hours are required for the water to be free from color. A similar effect takes place with the dissolved hypo, although being invisible we do not notice it. In this way no trace of hypo should be left at the end of an hour. If the prints are left in any longer than two or three hours, there is great risk of decomposition of the gelatine setting in, and once the germs are laid the process steadily continues, and it may be but a question of a few weeks before a marked change is discovered in the picture.

Other points which affect the permanency lie in the use of inferior mountants or bad quality mounts. Many of the cheaper kind of the latter contain hyposulphites used as an anti-chlor and which is naturally fatal to permanency. As a mountant the purest substance only should be used, and all complicated formulas containing a number of ingredients should be avoided.

However well the prints are made their permanency cannot be insured unless they are kept in a proper way. Gelatine, as is well-known, is peculiarly susceptible to moisture; it absorbs it from the air and decomposition takes place. Gelatine in a dry state will keep indefinitely, but moisten it and it goes bad in a few days, or in hot weather in a few hours. The advisability of keeping the prints dry cannot be too strongly pointed out. A gelatino-chloride print hung against a damp wall will soon show signs of deterioration. This can, however, be avoided by pasting a piece of water-proof paper over the print at the back, by the edges only.

Summing up our remarks, the conclusions we must arrive at are, first, gold should by no means be stinted in the toning operations. The prints should be thoroughly fixed in two fixing solutions of fair strength. The hypo should be freed by washing for as short a time as possible in several changes of water and not by long immersion, tending to decompose the gelatinous film. The purest mounts and mountants should be used. Lastly, reasonable precautions should be taken in keeping the finished prints to protect the film from moist atmospheres.

PHOTO-FILIGRANE.

A GERMAN contemporary announces the discovery of a new process of imitating water-marks by means of photography. This is identical with the photo-filigrane method invented by the great inventive genius Walter B. Woodbury. It was sold to a firm who were incapable of making any success of it, and so it died away into oblivion, to be revived again as something wonderfully new.

For making designs on paper or thin cardboard there is no process more perfect. Designs produced by water-marks, that is to say, during the process of manufacture, when the pulp is in a moist state, are very expensive, as the design has to be worked out with fine wire. With the photo-filigrane process the most elaborate designs can be produced, including all gradations of tone.

The process is simple enough. A carbon relief is made. Any one who has worked the carbon process knows that the picture is slightly in relief; by employing a thicker-coated tissue more relief is obtained. The carbon print made from a positive transparency is laid on to a sheet of suitable paper and the two passed through a rolling-press. The result is a picture on the paper when viewed by transmitted light, the effect being caused, as explained in the inventor's specifications, by those parts of the design which are in relief compressing the paper sufficiently to render the parts of the paper which have been so compressed more transparent to transmitted light, and on the other hand darker in color by reflected light, such compression being proportioned to the amount of relief in the several parts of the design; and thus every detail of the picture or design, as well as half-tones or gradations of light, are reproduced.

That for this process there is yet a large opening we have not the slightest doubt. It has a large list of applications; designing note paper producing special pictures (which it would be difficult to counterfeit) on bills of lading, cheques, notes, insurance policies, etc.

Among other uses to which this process can be put is the production of a portrait of one's self in the visiting card, a thousand such portraits being producible for a few cents.

EDITORIAL NOTES.

We are glad to find that the institution of our quarterly competitions seems to have given great satisfaction to our readers. We are every day receiving letters from our subscribers who are busy doing their best to win the prizes offered. The competition, be it understood, is an entirely free and independent one. No particular make of camera is required to be used, or any special brand of plate or paper. Use what you like and how you like. All we ask is, that you send us your own work and the prizes will be awarded according to the decision of the judges, who will not even know the names of the competitors. We ask you, what could be fairer?

The Photographic Times' certificate of merit will also be worth having as it will only be awarded to those whose efforts are particularly successful. To obtain a certificate will be a far greater achievement than to get a medal from some small society because yours is the least bad work there. The judges will be competent men and should these gentlemen consider your work deserving of merit, one will be sent to you. This you can have framed and be proud of it as a great achievement.

We give this week some of the papers read at the World's Congress. The Photographic Times is the only photographic magazine that will give a complete report of all the most important papers read at this meeting.

It is usually understood that the action of light upon the photographic dry plate is to produce a series of reversals. A short exposure gives a negative, a longer one reverses the action and a positive is obtained. Increase this still further and a negative is again said to be the result. Professor Burton, however, disputes this. He says:

"I have tried to get this often enough without success, and determined to make a supreme effort this time. The long sensitometer was used, and plates were exposed to the full blaze of sunshine for times from quarter-second to 34m. 8s. There was not a trace of re-reversal, developing either with pyro or with ferrous oxalate. This corresponds to an exposure in the camera, to a brilliantly lighted landscape for many days, with the conditions as they commonly are! I think that, if it is possible to prove a negative, these experiments prove the non-existence of re-reversal in the case of gelatine dry plates. I should like to know of any one who has had actual experience of re-reversal in the case of gelatine dry plates, or of any other plates, for the matter of that."

If a monochromatic effect of light and shade could be obtained on the focusing screen instead of the colored image it would be far preferable to the photographer and permit of a far more correct judgment of the necessary exposure. Further, a landscape image when seen in color often has a very different effect on the photograph. For this purpose a blue glass focusing screen has been recommended. A piece of blue glass is ground very finely and substituted.

The mistake Mr. Burton makes is in not exposing for a sufficient length of time; the process of re-reversal is a very slow one, and we have only obtained it by exposing for two or three weeks—until, in fact, the image is actually visible on the dry-plate.

To grind a focusing screen is not by any means a difficult matter. Two pieces can be done at the same time. One sheet of glass is laid upon a board and four strips of wood nailed all round it to keep it firm in position. These pieces of wood must not, however, project above the glass. A second sheet of glass is laid hold of with a pneumatic holder; some fine emery powder and water made into a paste is smeared on to the glass on the board. The second piece is then brought down and moved in all directions. The glasses are plentifully supplied with emery powder and water. When the two surfaces are thoroughly ground they can be detected by the entire absence of shiny patches. If the finest emery powder is used a far superior focusing glass is obtained to those usually supplied with cameras.

Another method is to use a pair of blue spectacles when focusing. Blue eyeglasses can be obtained of almost any color shade.

Still another method of obtaining a monochromatic effect may be mentioned. If a piece of blackened glass is held at an angle of 45 degrees, the button resting at the bottom of the focusing screen, the colors will be far less brilliant and deceiving; and, further, the picture will be upright

CLOUD EFFECTS.

I HAVE read with interest in "The Annual of 1892" "How to Obtain Clouds in Landscapes," by Mr. Albert Canfyn, and have carefully examined his "Blankenberghe Beach," illustrating the results of his mode of operation. I have also been interested in "Cloud Effects," and the article accompanying it by Mr. J. M. Lingenfelts, in your "Annual of 1893." The perusal of these articles prompted me to try the method recommended by these writers; so after procuring a piece of a cigar-box lid I cut it about 2½ inches square, and with an expansion bit bored a hole in the middle of it, to fit the end of the lens tube of my 5x7 hand camera tightly; I then got a piece of white cardboard and cut it the same size as the wood, viz., 2½ inches square. I then cut out of the centre of the card a half-moon piece, the diameter of the lens; this I tacked with four small tacks (one in each corner) to the piece of wood fitted to the lens tube, thus blocking out as it were the upper half of the lens. There is about a quarter of an inch space between the card and the face of the lens; this distance allows enough light to illuminate the sky part of the picture, aided by the reflection from the back of the white card, to give a cloud effect, provided, of course, that there are clouds in the field of view when the exposure is made. I have my arrangement almost a fixture, as I use it on all my exposures (which are mainly snap shots), except for special objects and street views. I would advise all who would like to try this dodge to read the two articles referred to, when they will arrive at a better understanding of the subject. Try it, and you will like it.

Thos. J. Bray.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 424.)

PART II.

THE MANIPULATION OF THE PAPER.

CHAPTER V.

TONING AND FIXING.

The operation of toning is to convert the color of the image into a more agreeable one than the red or purple tint of the prints when removed from the printing frame. Such tones as brown-black, purplish-black, purplish-brown or sepia are the ones chiefly admired, and all these can be obtained with chloride of gold assisted by other substances. In the last chapter we have given a very large number of formulas for toning and it should not be a difficult matter to select one that will give the tone most admired by the worker.

Our toning bath being ready and the prints washed, we will now proceed to detail the *modus operandi*. The dish containing the prints, washed, to remove the free silver, is placed to the left of that containing the toning solution and to the right is placed another dish containing clean water.

The busy professional is, of course, obliged to tone large quantities of prints at once, but at the same time he usually has a practical method that he adopts.

The amateur should, however, give more care and attention to this part of the process. "If a thing is worth doing it is worth doing well," is an old and true maxim, and nothing looks worse than a badly and unevenly toned print, unless it be a badly mounted one. A large number of prints should not be placed in the bath at the same time. If a strong bath such as Welford's be used, only one or two should be attempted at the same time. With other baths, half a dozen or so can be kept under perfect control of the operator. If too many be attempted they are likely to become unmanageable, stick to each other or to the bottom of the dish, and so cause the action of the bath to become uneven.

In placing the prints into the toning solution, different effects take place. If the bath be strong in gold and the prints are of a purple color, the action proceeds in such a way as to change the purple to a blacker or browner color. With some prints, however, the image will on immersion in the bath turn a reddish-yellow and then slowly alter their color to reddish-brown, brown, purplish-brown and purple.

The color of the print when removed from the bath is not, however, the color that the print will finally assume when dry. Other transformations take place, and these colors can only serve as a guide to the operator when he has become accustomed to the working of the bath.

When the prints have been toned sufficiently, they are removed to a dish containing clean water, rinsed and placed in the fixing bath which should be kept as far away from the toning bath as possible.

In removing the prints from the water to the fixing bath, it is necessary to exercise great care so as to avoid any of the hypo solution coming into contact with the prints or the toning solutions.

The prints are removed from the water and dropped into the fixing bath with the left hand and

with the right they are pushed well under the solution. In this manner there is no chance of the hypo coming into the contact of the prints before total immersion in it.

The fixing bath is made up of

Sodium hyposulphite.....	1 ounce
Water.....	10 ounces

Sometimes on immersion into the fixing bath the prints will lose the tone obtained, turning much redder ; after a little while, however, the color will return.

In the fixing bath the prints should not be left for less than ten minutes to ensure thorough fixation. They are then removed to undergo the final washing.

It should be remarked that the paper is more tender than many others. The film is easily scratched by the finger nail. In warm weather some makes of gelatine paper become very soft and require to be hardened with an alum solution before attempting to tone.

It should be remembered that when dry prints will appear darker and more violet than when wet.

In fixing, the action of the hyposulphite is to form two hyposulphites of silver, one an insoluble (in water) and the other a soluble one. The insoluble salt is only soluble in an excess of hypo and for this reason the finest method of eliminating it is to employ two fixing baths. After the prints have been toned in the bath already given, they should be removed and immersed in a fresh hyposulphite solution for the same length of time. This will give an additional permanency to the images.



Engraver and Printer.

"ISE TALLER THAN YOU, MAMMA."

Walter E. Woodbury.

(*To be continued.*)

NOTE ON THE COLOR OF NEGATIVES.

[*Photographic Work.*]

The difference in the color of gelatine and other negatives when developed by different methods has attracted the attention of photographers, owing to the difference in printing quality that they are said by some to possess. Others, again, say that a colored negative possesses no different qualities from one that is not colored or stained by development. The question, which can be fairly asked, is as to which is right. It appears to me that both may be said, under certain circumstances, to be right. I have measured several negatives in my color apparatus, whereby I can obtain the proportion of the different rays transmitted through them, and it appears to me that the kind of negative which is measured has much to do with the answer. I have two negatives, one of which appears to be colorless, and the other slightly green. These were measured, with the following results. The first one showed that the proportion of every ray which was transmitted was the same throughout the spectrum at every part of it. The negative was produced by developing with pyrogallic acid and ammonia, and sulphite of soda added. The other was of that yellowish-green hue which is so characteristic of a negative when the sulphite is omitted, or not added in sufficient quantity. This was measured, as also the coloring matter on the bare plate, when it was found the measure of the first was compounded of the density due to the silver and to that of the coloring matter on the part of the plate which was bare of all deposit. Another kind of plate was measured, two different densities being produced. It had a greenish hue, and the measures of the light of the different parts of the spectrum which penetrated through the two portions were found to be quite consistent with the color. Thus—

In the thinnest,	16	per cent.	of red light	penetrates.		
" "	13½	"	orange	"	"	
" "	11	"	green	"	"	
" "	9	"	blue	"	"	
In the densest,	5½	p. c.	of the same red light	penetrates.		
" "	4¾	"	"	green	"	"
" "	3½	"	"	orange	"	"
" "	3	"	"	blue	"	"

If we divide the light of each color penetrating the thinnest density by that penetrating the thickest, we find that it is approximately three times in each case. Now had the stain been uniformly distributed throughout, this would not have been the case, and there would have been the same loss of density in both cases, due to the absorbtion by the coloring matter, added to that due to the loss of light from the opaque silver deposited. The ratio of the lights penetrating in the two cases

would, therefore, not have been the same, which it is found to be.

In the first case, the increased density is the same as would be found by placing a colored screen in front of a negative which was colorless. In the second case, it is a genuine increase of color with different densities of deposit. In the former, the coloring matter may be got rid of by immersing the negative in alumn and acid ; in the latter it cannot.

This coloring matter is due to the silver salt probably being deposited as a sort of lake.

W. De W. Abney, C.B., R.E., D.C.L., F.R.S.

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION.

[The following introductory remarks were made by James B. Bradwell, Chairman of the Committee, on opening the Photographic Congress, August 1, 1893.]

Photographers of the World's Congress Auxiliary.

Ladies and Gentlemen : It is perhaps not out of place for me, representing the committee on the Congress of Photographers that called you together and selected the persons to present papers for your consideration and discussion, to say a few words (not of welcome, for this is your Congress, but relating to the Congress itself).

Fifty-five persons, representing Europe, Asia, Africa, America and the Islands of the Sea, have accepted invitations to prepare papers and deliver addresses upon photography and the processes dependent thereon. Twenty addresses from persons whose residences are so distant that they are unable to attend the Congress, have been received by the committee and will be read and discussed. The other addresses will be delivered by the authors in person. This is an age of illustration and it has come to stay. Not the illustration of the old wood-cut with which the spelling books and readers of our youth were thought to be adorned, but of the beautiful silver print, the photogravure, the life-like half-tone, and other light printing processes.

The program presents a great variety of talent and subjects :

"Color Photography" is represented by Fred. E. Ives, its ablest exponent in America; "Isochromatic Photography," by G. Cramer and "Orthochromatic Photography and its Practical Application," by John Carbutt, once a Chicago photographer. These gentlemen are the proprietors of two of the most extensive dry-plate establishments in the country and will do their subjects ample justice. "Photography in Natural Colors," by the eminent artist, Edward Bierstadt, of New York. "The Present and Future Possibilities of Photography" has been assigned to the enthusiastic W. I. Lincoln Adams, of The Photographic Times, and to Leon Vidal, an eminent artist of Paris and professor at the National School of the Decorative Arts. "Winter Photography in the Alps" is aptly treated by Elizabeth Main. Dr. John Nichol, of the *Photographic Beacon*, well-known both in America and Europe as an able writer and skillful photographic artist, still holds his subject within his photographic breast, but we have no doubt it will be entitled, "Words of Wisdom from the Watch Tower." "Amateur Photography" was very appropriately selected by Miss Catharine Weed Barnes (now Ward) and "Photographers' Efforts at Union," as appropriately selected by H. Snowden Ward, of London, England, and in the light of Mr. Ward's efforts at union we have no doubt his paper will be exceedingly interesting. "Electric Lighting in the Studio" has a skillful exponent in Henry Van der Weyde, of London, England. "Portraiture" is treated by Shapoor N. Bhedwar, of Bombay, India, in an exceedingly able and interesting manner. "Posing and Illumination," by E. M. Estabrooke, of Elizabeth, N. J., will well repay a careful examination. "The American Bibliography of Photography" is to be treated by C. W. Canfield, of New York, an able and experienced photographic writer.

"Photography Applied to Scientific Research," by Prof. Romyn Hitchcock, of the Smithsonian Institute, will be a paper of lasting value. "The Finer Division of the Silver Haloids for Scientific Work" by Thomas W. Smillie, of the Smithsonian Institute, will be of unusual interest to the scientific photographer. "The Hand Camera—Its Aims and Objects," by Walter D. Welford, of London, England, will be instructive to all not skilled in the use of this instrument. "Film in Relation to Amateur Photography," by Gustave D. Milburn, of Rochester, calls attention to a matter not generally known in relation to films when rolled. "The Camera as a Source of Income Outside the Studio," will be treated by Mrs. Elizabeth Flint Wade, of Buffalo. "America's Share in the Development of Photography" will lose nothing at the hands of Julius F. Sachse, editor of the *American Journal of Photography*. "Carbon Printing" has been assigned to W. A. Cooper, one of Chicago's oldest and most expert process workers. "Fine Line Screens and Their Use," by M. Wolfe, of Dayton, who was not the first to discover

their use, but was, we believe, the first in America to make them publicly an article of merchandise. "Photo-Mechanical Processes in England" receives the attention of W. T. Wilkinson, the author of a work on Photo-Engraving. The beautiful process of Photogravure has been selected by the artistic and well-known Ernest Edwards, of New York, and Photo-Mechanical Printing up to 1893, by Prof. Jacob Husnik, of Prague, Austria, author of four works on mechanical printing.

The learned professor expects to surprise Americans. We have no doubt he would be surprised if he could be present and hear the discussion that his paper will occasion. America is not behind the age in either photography or process work. "Support-Reflection—Its Sources, Its Effects, Its Remedies," is to be treated by I. T. Sandell, of Thornton Heath, England. There have been so many improvements in photographic lenses recently that anything upon this subject by scientific and practical men is of interest to all photographers. "Tele-Photography" will receive the attention of Edward Bausch, of Rochester. The address of Thomas R. Dallmeyer, of London, whose name is known wherever photographic lenses are used, arrived but yesterday, and its title on the programme should be changed to "Tele-Photographic Systems of Moderate Amplification." "Recent Improvements in Photographic Lenses," by Professor W. K. Burton, of the Imperial University of Tokyo, Japan, is upon a subject of much interest, and will rank high among the able papers of the Congress. "Photography as an Aid to Education," will be demonstrated by Professor Charles F. Himes, of Dickinson College. "The Camera and the Pulpit" will be the subject of a discourse by Rev. A. W. Patton, of Joliet. M. A. Seed, maker of the celebrated dry plates that bear his name, will speak of coarse-grained negatives, and tell how to prevent them. Dr. Ellerslie Wallace, of Philadelphia, has a very readable paper upon medical photography in general. "Photography in Surgery," I am pleased to say, will be treated by a woman, Mrs. Dr. G. F. Sears, of Chicago.

In this connection I may be permitted to say that in all the departments of the Photographic Congress, men and women are upon an equality. Notwithstanding the continued efforts of Mrs. N. Gray Bartlett, chairman of the woman's branch, and the entire committee, but five women have been found in Europe and America to accept invitations to deliver addresses.

"The Sensitiveness of Photographic Plates," is the subject selected by the cautious and accurate Professor G. W. Hough, of the Northwestern University. Andrew Pringle, of London, is to tell of "The Services of Photography to Medicine." "Negatives for Lantern Slides and Enlargements," is the subject of F. A. Bridge, Hon. Secretary of the Photographic Club, London, "Marine Photography" is assigned to one of its ablest exponents. Henry G. Peabody, of Boston.

"Photography for Illustrating the Practice of Medicine and Surgery in a Great Hospital," by Professor O. G. Mason, of Bellevue Hospital, will interest not only photographers but all who are in the practice of medicine and surgery.

"Photography as Applied to Medicine," by Professor Albert Londe, of Paris, is a paper of great scientific value and interest. "Photography as Applied to Surgery," by Professor A. S. Murray, of Johns Hopkins Hospital, is a practical paper.



From the Engraver and Printer.

THE BROAD GAUGE ROAD.

Singular Effect of Placing the Camera on the Ties.

The beautiful landscapes of Colorado, taken in the pure air of the mountains, will receive the attention of W. H. Jackson, of Denver.

The paper of W. Jerome Harrison, of London, contains valuable suggestions as to the desirability of establishing an International Bureau to record and to exchange photographic negatives and prints. I would recommend that this paper be taken up out of its order, read, and referred to a committee with instructions to consider whether some plan cannot be adopted to carry out the suggestions. "Photography without a Lens," is illustrated by Captain R. Colson, of Paris. "Universal Standards in Photographic Apparatus" is to be advocated by Henry Sturmey, of London. "The Latent Image" has been selected by Miss Adelaide Skeel, of Newburgh, as her theme. In brief, this is a portion of the literary bill of fare which has been prepared for your consideration.

In view of the great number of papers, and the shortness of time, I would recommend that the reading of no paper be allowed to occupy more than twenty minutes, and that in discussing questions relating to the papers no person be allowed to occupy more than five minutes. Suggestions following the reading of a paper are often more valuable than the paper itself.

Can we estimate the value of portrait photography better than to ask, what would a photograph of Columbus be worth to-day, if it could be produced of him as he landed upon our shores four hundred years ago? Are his portraits satisfactory? We may admire the work of the great masters of the past and the portrait painters of the present, but no human hand can equal the sunlight of the Almighty for reproducing the life-like and accurate features of the human form. We depend upon photography to give us pictures of our friends as we see and know them now. Is there any art or science upon which so much depends as photography? The newspapers, the magazines and the books of the world are illustrated by its aid. The astronomer, the surgeon and physician, the architect, the engineer, the minister, the lawyer, and the judge in the administration of justice, all, more or less, are aided by photography.

The object of this Congress is to bring together the photo and the photo-mechanic artists of the different countries in the world to compare views and methods and profit by the experience of each other.

The scientific men of the world are at work to develop and perfect photo-mechanical art, and such rapid progress is being made that the man who is in the front rank to-day may find himself in the rear to morrow. The slow, wet photo process, once universal, has given place to the rapid dry-plate except for process work and lantern slides. Some claim for half-tone work that a slow, dry-plate is even better and gives a truer reproduction. The asphalt, the swelled gelatine, and the wash-out gelatine processes, once so popular, have almost passed into disuse. The half-tone etchings on zinc once in general use for fine book and magazine illustrations have very generally been superseded by the fine half-tone enamel copper process. This is undoubtedly the best and cheapest process, all things considered, up to date, for fine book illustrations, as the blocks work nicely with type and when properly made may be used to make electrotypes.

Blocks made by this process with a coarse line screen and deeply etched may be run upon a country cylinder press where common news print paper is used and poor ink.

With few exceptions the world over the great dailies use the old wet-plate process and the etching in line upon zinc for purposes of illustration. I look forward to the near future when the half-tone process will be generally used by our great city dailies.

Half-tone blocks may be made without etching by taking a slow dry-plate, exposing it under a line-screen, and after development subjecting it to heat and placing it in a chemical solution. An electrotype may be made from this negative, which will have all the relief required to run on the printing press. In fact, the dry-plate half-tone negative itself thus treated may be cemented to a wooden block and run on the printing press with type within an hour from the time the exposure was made on the photograph to be copied.

I have no doubt there are those within the sound of my voice who will live to see the time when photographic reproductions will be sent from country to country as quickly as we do telegraphic messages to-day.

W. Jerome Harrison says: "The international photographic survey of the heavens has now been in progress for six years; some thousands of negatives of the stars have been obtained, and when this survey is completed the present face of the sky will be known with an accuracy which the astronomers of a pre-photographic age never dreamed of."

In conclusion, may I not ask who shall say that the camera, adjusted by the hand that feels and focused by the sensitive eye that sees beyond, with the aid of intensely sensitive dry-plates, shall not bring to light and view the forms of our departed friends and solve the problem of immortality and life.

A PLEA FOR THE NATIONAL RECOGNITION OF PHOTOGRAPHY.

[Read at the World's Congress of Photography by Dr. John Nicol.]

PHOTOGRAPHY, as popularly understood, implies a sitter at one end of a more or less glass-covered room, and a camera with a man, until recent times at least more or less of a Bohemian, at the other.

Far be it from me to undervalue that phase of photography; a phase that gives bread-and-butter to thousands, and affords pleasure to tens of thousands, although it is photography's lowest phase; and were photography capable of nothing higher I should not have had the presumption to occupy your attention with this paper.

What may be called the pictorial phase of photography may be safely left to take care of itself, although judging from the average specimens of professional work, not only here but in all countries, there is much room for improvement; improvement which I may say, in passing, will not come from within, but from without—will not be affected by the profession until forced from it by a more cultured public. In its commercial aspect it needs no stimulus beyond that of ordinary competition, and the production of even what is known as high-class work is sufficiently within the capacity of anyone who cares to study the science and art involved in it to enable him to supply the demand when it comes.

But with the higher branches of photography it is different. It already plays an important part in almost every branch of science and art, and is largely employed in many, if not most, of the manufactures on which so largely depend the prosperity of a nation. It not only counts the number of the stars, but gives us a faithful record of their wanderings to and fro, and tells us something of the elements of which they are composed. In short, it takes the place of the too-often erring eye of the observer, and gives a permanent and exact record instead of an evanescent and easily misrepresented observation.

Nor is it of less importance in the sublunary—should we not, in a photographic congress, rather say subsolar—sphere? Here photography is to motion what the microscope is to matter. It catches it, as it were, on the wing, and makes a permanent record of rapidities so great and distances so minute as to be infinitely beyond the power of the human eye, and so reveals to us secrets that but for it must forever have remained so. It has opened up new possibilities in illustrated literature, given new opportunities to the teachers of anatomy and surgery, and in short is an all-round and all-ready go-between to him who has something to teach and him who has something to learn.

But to touch upon a tithe of the possibilities of what may be called the scientific, in contradistinction to the pictorial phase of photography, would run this paper to an altogether unreasonable length, and, therefore, I may say, in a word, that so intimately is it becoming connected with every branch of knowledge, that the time is coming,—nay, has already come,—when a liberal education must include an acquaintance with it that cannot be acquired in a haphazard way.

The proudest boast of a nation is that it possesses a cultured and educated people, and that nation is most worthy of honor that does most to foster that education and culture.

It has been for ages an established fact, one of those "chiels that winna ding," that while up to a certain stage the education of a people may safely be left to themselves—to their recognition of the necessities of the case, and to their social and commercial surroundings, the higher education must be fostered by external endowments, or the recognition and support of the state, or more generally by both combined. Photography,—scientific photography,—is possibly yet in its infancy, and there is much to be yet discovered. While some of the nations have given and are giving a helping hand, feeble it may be, but still a recognition, America has stood idly by. She is accused of an inclination to boast, and those that love her will not deny the soft impeachment, because to boast is legitimate and right, *when there is anything of which to boast.* But *is* there anything of which as a nation we may be proud of in connection with photography? Nothing to which the nation, as such, can lay claim. It is true that Draper, in the early days, and Hale at the present time, and not a few between, are names that shall be associated with scientific photography wherever it is known; but not to the nation is the world indebted for any part of the noble work they have done and are doing.

But it is never too late to mend; and what I say to America applies equally to every nation that has not yet recognized its duty to the world in this direction.

America as a nation should not stand quietly by and leave to other nations or to individual effort the honor of unfolding the glories that may yet be in store for the art. In this matter we have, perhaps, greater difficulties to overcome than other nations. We are divided into many states, each to a certain extent independent of all the others, and

mere state recognition in our case will not answer the purpose. We naturally and wisely look with suspicion on proposals for centralization, but there are matters in which the nation and not the state should take hold, and the recognition of photography is one of these.

This is neither the time nor place in which to say just what form this recognition should take, or nothing, at least, beyond a mere outline; but one essential feature must be the creation of a state-supported and, to a certain extent, state-controlled institution for the study and teaching of photography. I do not mean state in the restricted sense in which it is employed in America, but as synonymous with nation. Such an institution would doubtless soon be largely aided by endowments, and must be absolutely free from political interference and unaffected by party change. It should possess a staff of experts in all the various branches of science and art involved in the practice, not of scientific photography only, but of every branch, and the salaries should be such as to attract the best men, not necessarily of America only, but of the whole world.

In addition to teaching, those men, or some of them, should be expected to devote some of their time to original research, and from their labors we might hope to get something that would help to remove the reproach that we are altogether devoted to dollar hunting.

But a long experience tells me that teaching that is altogether free is very apt to be undervalued, and therefore while it should be such as would attract pupils from every quarter of even this large country, a scale of fees should be a *sine qua non*.

It is no doubt true that even moderate fees might exclude some of nature's gifted ones, but that could be avoided by the institution of a class of exhibitioners, admitted to all the privileges of the institution free, on the recommendation of, say, the principal educationist in each State; a recommendation based on a recognized unusually great ability of a pupil, and such an exhibition, in addition, to giving the people the desired education would be regarded as no mean honor.

The certificates, or admission to the fellowship of such an institution—the right to add to his name the letters F. I. P.—Fellow of the Institute of Photography, for example, given only after a thoroughly satisfctory examination, would soon be recognized and highly valued, and the time would soon come when there would be at least a large class of photographers recognized as members of a learned profession, instead of as now, when many, very many it may be said—in the words of the country from which I come, that "they are neither fish, flesh or fowl, nor good red herring."

ISOCHROMATIC PHOTOGRAPHY.

[Read at the World's Congress of Photography by G. Cramer.]

Among the great discoveries and achievements that characterize our present century and have accomplished results never before dreamed of and formerly deemed impossible, photography holds a prominent place in practical utility and as a helpmate to art and science.

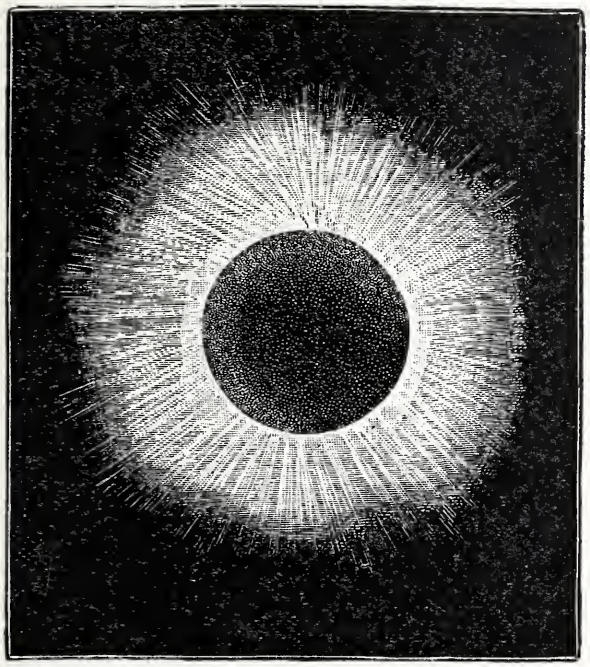
Portraiture has been brought to simplicity and in the fraction of a second we can now secure the features of those who are dear to us. Foreign countries and nations are brought to our sight in pictures produced by the camera, movements of animals, too quick to be distinguished by the human eye are truly and accurately recorded by the highly sensitive photo dry plate, the stars are photographed as well as the minute bacilli and bacteriæ, whose multitudes inhabit the drops of water and the cells of animal life and which in many instances are the causes heretofore unknown of disease.

Since photography has rendered it possible to secure the rays of light to the sensitive plate it has been the aim of scientists and practical workers to bring it to perfection and the greatest improvements have been achieved in the preparation of dry plates ready for use and of the utmost sensitiveness. The greatest desideratum, to obtain photographs in natural colors, is now brought in the reach of possibility as shown by the fine specimens of reproductions which are on exhibition in the photographic department of our great World's Exposition, and the time may not be far distant that portraits and landscapes are photographed in all the beautiful tints and colors as seen in nature. The most important step in this direction was the production of color-sensitive plates by which one of the shortcomings of photography is corrected, that is the insensitiveness of the ordinary plates to the yellow, orange and red colors which cause these colors to appear much darker while the blue and violet appear much too light in the ordinary photograph.

The aim of isochromatric or orthochromatic photography is the production of plates equally sensitive to the different rays of the spectrum, so that in the monochrome of the finished picture all the colors are rendered equally correct in their respective values.

This color-sensitiveness is obtained by the addition of certain ingredients, mostly of the eosine group of aniline dyes, to the sensitive bromide of silver emulsion and the plates so prepared are called isochromatic or orthochromatic plates.

A great drawback to the introduction of the isochromatic plates into general use has been the



From Scientific American.

THE SOLAR CORONA DURING TOTAL ECLIPSE.

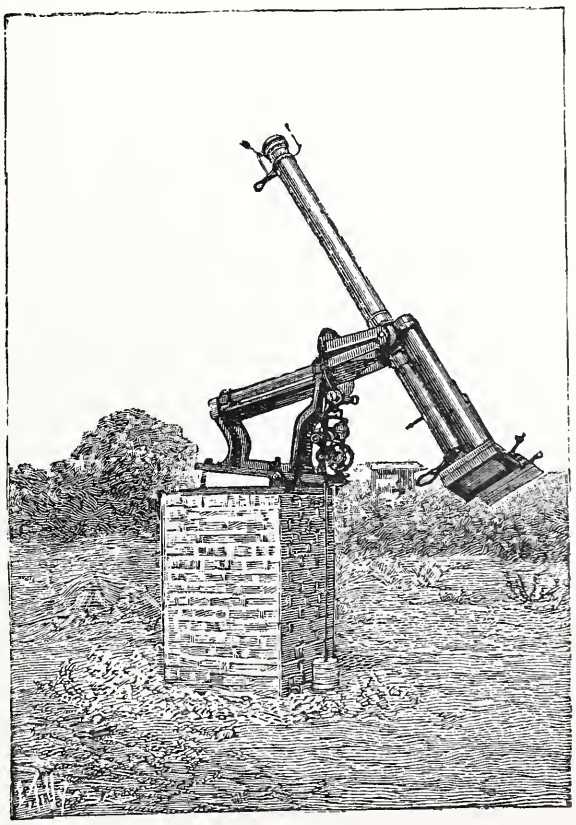
necessity of a color screen in order to obtain the isochromatic effect. A yellow glass has had to be placed before or back of the lens, or a yellow pellide in place of the diaphragm, to filter the light and to subdue the greater actinic power of the blue and violet rays. The isochromatic effect being increased in the same proportion as a screen of deeper yellow color is used, it necessarily follows that the required exposure is prolonged in the same ratio, and to such a degree that the use of a color screen for portrait work and instantaneous exposures is out of the question. If the yellow screen is not perfectly even in structure and thickness, and absolutely plain, it will cause distortion of the image by aberration. Change of chemical focus and reflection may also be caused by its use, and, therefore, it is apparent that plates which produce the most isochromatic effect without the aid of a color screen are the most valuable. As such plates can now be obtained, which combine great rapidity with good color-sensitiveness and are no more difficult to work than ordinary plates, their advantages should be appreciated by the photographic fraternity.

In portrait photography, the blue eyes, auburn hair, are rendered more truthfully, imperfections in the complexion, such as freckles, are less noticeable, and dresses of any color are photographed correctly, so that ladies need no longer consult the photographer as to what color of dress to wear when having their pictures taken.

In landscape photography the main advantage of the isochromatic plate is that distant objects are photographed much more distinctly than with the ordinary plates. A slight haziness in the atmosphere is neutralized by the use of an isochromatic plate, while an ordinary plate would not produce any satisfactory result under the same circumstances. White clouds in a blue sky cannot be photographed except with the isochromatic plates, and how much clouds add to the beauty of a landscape is known by everybody. In sunset scenes the superiority of the isochromatic plate is as apparent as in the autumn landscapes with their wealth of yellow and orange tinted foliage.

In seascapes or marine views the horizon is not lost, water and sky being properly rendered.

In commercial photography the instances where isochromatic plates should be used are too numerous to mention. Wood-work, which is generally of a yellowish tint, is photographed more perfectly, inscriptions on wagons, railroad cars, samples,



From Scientific American.

APPARATUS FOR PHOTOGRAPHING THE SOLAR CORONA.

floral designs, etc., etc., which may not show at all when photographed with an ordinary plate, are perfectly reproduced.

Now for the copying of paintings in oil or aquarelle, nothing but an isochromatic plate should be used and its advantage for this class of work is most strikingly apparent. In an old oil painting the lights are generally yellow while the half-tones are of a bluish tint. It is impossible to obtain a good copy of such a painting with an ordinary plate. Plates of full isochromatic effect are necessary for this purpose.

Another advantage of the isochromatic over the ordinary plate is its greater sensitiveness when the light is yellow, as is frequently the case in fall when the sky is cloudless, or in photographing by gas-light.

I have now said enough of the advantages of isochromatic plates and beg to be excused if I have made statements of facts supposed to be well known, but the isochromatic plates being undoubtedly the plates of the future it seems to me that their full value should be more generally understood and appreciated.

PHOTOGRAPHING THE RECENT ECLIPSE.

WE have from time to time kept our readers acquainted with the proceedings of the Eclipse Expeditions. By the kindness of *The Scientific American*, we have much pleasure in giving our readers a sketch, from a photograph, of the solar corona during the total eclipse, and a view of the apparatus used by the French expedition at Senegal. According to *L'Illustration*, "twenty-two photographs of the corona were obtained by the French mission. The view that we give of the corona is from one of the photographs, which was so taken as to show especially the external part. Other photographs show only the more brilliant interior part and the protuberances. On another hand, the study of the chemical composition that had been undertaken by photography in a hitherto unexplored part of the coronal light was satisfactory, and will permit of recognizing new bodies in the atmosphere of the sun. Finally, the most important research, relative to the rotation of the corona, was crowned with success. The photograph obtained shows that the solar corona revolves nearly like the sun and forms part of it. This last result, which is surely interesting and new, does honor to the French mission, which was the first to take up, and with success, the study of the general movements of the solar atmosphere."

The door of the studio was flung open and she dashed wildly into the room, and seizing the unlucky photographer by his few remaining locks, shouted wildly: "How dare you, sir! How dare you insult me!"

"Insult you, madam? I am sure I —— ——"

"What is the meaning of that then, sir?" and she pointed to the notice on the back of the mount, "The original of this is carefully prepared."

It took him three weary hours to explain, and she left him a sadder and a wiser man.

PHOTOGRAPHIC CONVENTION.

MR. WARD'S ADDRESS.

MR. WARD: Mr. President, Ladies and Gentlemen: I may say on behalf of British people and British photographers especially, that the effort that has been made this year to the increase of friendship between the different members of the English-speaking races by the holding of the World's Fair in Chicago has been very much appreciated.

At our convention in Edinburgh last year we had three American visitors present. It was the first time that any foreigners had been at our British convention. We had three Americans, one Austrian and one Frenchman, and we called it, in our little way, an international convention. The American visitors were the guests of honor, and I believe that at the convention this year which has just closed, and from which I expected to have some correspondence by this time, a resolution was introduced to the effect that all members of the Photographers' Association of America should be considered honorary members of the Photographic Association of the United Kingdom (applause), and that all American photographers traveling in Great Britain during the early part of July, which is the time that our convention is held, are invited to take part in that convention, and to use all the privileges that it can offer. At the present time there is a very great wish to increase the feeling of unity, to increase the mutual knowledge of the English-speaking peoples on our side.

There are in England a very great number of well established and well equipped photographic associations, and I believe that among them it is a matter of regret that a considerable number of American photographers at one time and another travel through portions of the old country and never attempt to make their acquaintance. We regret this, because we cannot always know who are the people in the country, we cannot always send them individual invitations, but the principal photographic associations in Great Britain and Ireland will be proud to have any facilities they can extend used by American visitors. I am only personally able to speak on behalf of the societies of which I am a member. The Photographic Society of Great Britain, which is our parent society, and I believe the oldest established photographic association in the world, has in the past always welcomed all American visitors. The Photographic Club, which is one of our associate institutions, the London and Provincial Photographic Association, the Hackney Photographic Society, the South London Photographic Society, which represent five of the first half dozen of our photographic organizations in London, are all anxious to extend any friendship and any assistance that they possibly can to our American cousins. I do not mention the name of the Camera Club, because I am not a member of that club, but I believe that they would be equally hearty in their welcome. I know that they have been to individuals, and I believe that they would be to all. And with regard to the provincial societies in Liverpool and Manchester, in Birmingham and Edinburgh, in Glasgow and in dozens of other places, the welcome extended will be very hearty. With regard to our exhibitions, we hope that in future there will be much more American work represented. Our Photographic Society of Great Britain holds its annual exhibition, as it has done for over thirty years, and the several smaller

exhibitions will always be proud to devote such space on their walls as may be necessary to the work of American photographers, and we hope that in every way possible the feeling of fraternity, the feeling of unity, the desire to learn and to teach each other, will spread everywhere as far as it possibly can, until we shall cease to ask whether the work is done by an American or by a Briton.

BRITISH CONVENTIONS.

By H. S. Ward.

The Photographic Convention of the United Kingdom was formed in 1886, as the result of a suggestion mooted in the photographic papers of that summer. The first meeting was very hurriedly arranged, and was held in Derby, as being a central and easily accessible town. Excursions were arranged and held, papers were read and followed by discussions, and though only forty-six members attended, the meeting was voted a success, and it was decided to hold it annually. An honorary committee was appointed, with Mr. J. J. Briginshaw as Secretary, and great preparations were made for the second convention, which was held in Glasgow.

To a great extent this Glasgow meeting settled the form and many of the details of procedure for subsequent conventions. The Glasgow photographers, both professional and amateur, are great enthusiasts, and they made considerable preparations for the reception of the visitors. There were six well-arranged and largely attended excursions, and six practical papers were read at the afternoon meetings by representative men. There were one hundred and ninety-three members.

Birmingham, the third year, was an unfortunate convention. The local society, a very strong and influential body, made the local arrangements, providing an excellent meeting room and exhibition, and a fine series of excursions.

There were two hundred and thirty-two members.

Bad weather spoilt some of the excursions, and when the reckoning came to be made it was found that the arrangements had cost far more than the very modest income of the convention. The central committee disclaimed responsibility, and suggestions were made that the local committee had been unwarrantably extravagant. The local committee retorted that all their expenditure had been authorized from headquarters, and the quarrel led to a very bitter correspondence in the photographic press.

In the end a subscription was made to cover the deficit, but the soreness was not completely healed.

In 1889 the location was changed to London, a large and expensive hall was engaged, and efforts were made to induce the dealers and manufacturers to take space and make a good exhibition of apparatus, etc. An exhibit of pictures was also arranged. A series of eight useful papers and discussions was provided, and four excursions. A very large and successful excursion was expected, but the promoters were doomed to disappointment. Only two hundred and twenty-five members joined, so that there was again a deficit.

To those who did attend, London itself proved a greater attraction than the convention, so that the excursions were neglected. The attendance at the indoor meetings was almost *nil*, and the dealers were so disgusted at the attendance on the opening night that some of them did not complete their exhibits. The large hall had been engaged, largely in the expectation that the general public and London amateurs would attend in large numbers at the exhibition, discussions, etc., but hardly an outsider put in an appearance. At the end of the meeting things looked black, and there were rumors that the convention would not be able to continue, but fortunately a few brave spirits determined to try again, and their experiences at Birmingham and London proved useful.

Chester, one of our finest historic cities, offering numerous fine opportunities for excursions into North Wales and elsewhere, was chosen for the fifth convention, which was in many respects a success, though the attendance was small (only one hundred and fifty) and some of the arrangements and incidents of the meeting gave rise to strong criticism. As there is no purely photographic society in Chester, a local committe was formed of the members of the Philosophical Society. The Mayor and Corporation granted the use of the ancient City Hall, where a small but interesting exhibition was made, and the Mayor in person welcomed the visitors at a *conversazione* held on the opening night. Some good work in the way of papers was presented to the meeting.

The sixth convention was at Bath, and had a very small attendance (one hundred and four members), but was a thorough success from the point of view of those who did attend. Again the city provided a meeting hall, and the Mayor received the visitors on behalf of the local committee. The excursions were most interesting, especially one to Abbey, the home of Henry Fox Talbot, the father of photography. Here the party was received by the son of Fox Talbot, who showed numerous examples of his father's work, dating back as far as, probably, 1835. Portfolios of prints and paper negatives, bundles of experimental results, half finished successes and failures and many prints from the Pencil of Nature were reverently examined.

Last year the Convention paid its second visit to Scotland, and first to Edinburgh, and we had a meeting that was a notable success in many respects. It was, for the first time, international in character, as we had the pleasure of welcoming three American visitors, including Miss Catharine Weed Barnes and Dr. Charles L. Mitchell, and two continental workers, including Dr. Liesegang. It was the first convention at which ladies attended the Convention dinner and the success of that experiment was such as to encourage its repetition. The Lord Provost of Edinburgh welcomed the visitors, the Royal Geographical Society of Scotland (?) provided a meeting and exhibition room ; the excursions were well arranged and, with one exception, well attended, and even the indoor meetings had good attendance and good discussions. The hospitality of the local members, both individually and collectively, was unlimited, and with fine weather and the many attractions that Edinburgh presents the meeting was a grand success. The number of members was two hundred and forty-six.

This year Plymouth is the rendezvous, but as I spent Convention week aboard the good ship "Arizona," steaming westward to join the present Convention, am unable to report from personal experience upon the success of the meeting.

A few particulars of the method of conducting our Convention may be of interest. Membership is for one year,

and practically covers the week of the Convention only. There is no entrance fee, and the annual subscription is five shillings ($1.25). The management is entirely honorary, and consists of a president, secretary and committees, all elected annually. The Convention usually has invitations in advance from various photographic societies to meet in their towns; for instance, at the last Convention invitations were read from Plymouth, Hereford (?) and the Photographic Society of Ireland. In such cases the inviting society forms a local committee and makes all local arrangements, subject to the approval of the general committee. As the meeting is of a semi-scientific character and not in any sense a profit-making concern, there is no great difficulty in securing rooms free of charge from the local authorities. As already indicated, there is a small exhibition of pictures and apparatus, a series of excursions and meetings for discussion of photographic subjects. The general committee arranges for special fares (when possible) to the place of meeting; for special rates at the hotels and generally for special facilities, permissions to photograph in private grounds, etc., etc.

Each member is provided with an elaborate programme of arrangements in the form of a little book, and also with a Convention button which forms an unobstrusive distinguishing mark. The Convention opens with a *conversazione*, generally provided at the expense of the local committee or a few local members, and finishes with a Convention dinner for those who care to attend it, at a charge of five shillings, in addition to the membership fee.

I imagine that many Americans will wonder how so much can be done on so small a subscription. But as the management is all honorary, the expenses are very small.

That the membership should be so small will also be a cause of wonder. It is also a cause for regret, and seems to be due to the fact that British photographers are slow to take interest in a thing that does not offer them very definite advantages. It is to be regretted that few of those who attend the Convention one year and are unable to do so the next year, continue their subscriptions. Therefore the number of members in any given year represents the number actually in attendance, and when the meeting is held in any but a fairly accessible district, the number decreases.

I don't know that there is anything further that I can say with regard to the outlines of the British Convention. In many respects it is different from your own, as I have pointed out, and in some ways it is similar. Whenever any of our American friends are in our country, they are invited to be with us, and I hope that in the years to come many of you will be able to learn, by practical experience how we conduct our meetings. (Applause.)

A NEW DEVELOPER FOR GELATINE DRY PLATES.

(*Continued from page* 426.)

DEVELOPER NO. 2.

Formula (*apothecaries' weight*).

A.

Argentic emulsion, prepared with silver tartrate	6 ounces

B.

Sulphite of soda crystales, pure and natural	2 ounces
Water, hot	8 ounces

C.

Amidol	120 grains

D.

Bromide of potassium	8 grains

The argentic emulsion is gently warmed and the sulphite of soda solution B gradually mixed with it. If a precipitate of gelatine forms from too concentrated a solution, warm the emulsion on a water bath and add gradually hot water until it dissolves. The emulsion, which is of a light olive color, is allowed to cool; C and D are added dry, and quickly dissolve; the volume is made up to 16 ounces by water, and the developer is immediately bottled to avoid absorption of oxygen. Tested with litmus paper, it should show a faint alkakine reaction.

COMPOSITION PER OUNCE OF DEVELOPER NO. 2.

Amidol	7.5 grains
Gelatine	3.1 grains
Sulphite soda, free	60. grains
Sulphite soda, combined with silver salt	25. grains
Bromide of potassium	0.5 grains
Silver tartrate	4.4 grains
Glycerine	¾ drachm = 8 per cent.

This formula is less complicated and more easily prepared than No. 1. Only a minute quantity of alkali is required, the sulphite of soda acting as the accelerator, and in consequence, in prolonged development, there is little danger that the film will be attacked. It is also practicable to use a more sensitive argentic emulsion, prepared with the least proportion of gelatine that will restrain the silver tartrate, in order to increase the electrolytic action. This developer has been but little investigated; it is probable that metol, or a mixture of metol and hydroquinone can be substituted for the amidol in the above formula, and other alkalies employed, such as caustic lime, lithia, or baryta.

DEVELOPMENT.

In hot weather, or when the development is greatly prolonged, it is advisable to keep the developer cool by an outer tray containing ice water, as heretofore described. Usually, with formula No. 2, this is not necessary, and the development is carried out much in the same manner as with pyro. The action is started with 1 ounce of the developer mixed with 3 to 5 ounces of water, 2 or 3 drops of a solution of

Carbonate of potash	120 grains
Water	1 ounce

are added to each ounce of the mixed developer to accelerate the development.

The strength is increased by the addition of fresh developer as the operation proceeds. It is only necessary to occasionally rock the tray. The action is less energetic than developer No. 1, and the negative does not so rapidly become opaque. The point at which to terminate the development is judged in the same manner as with pyro, save that, as there is no danger of fogging, it may be prolonged until the negative is dark and opaque. The plate is rinsed in water and fixed as usual. The negatives developed with amidol emulsion much resemble in appearance those produced by pyro.

With a developer of this class it would be practicable, when many negatives were developed, to employ a grooved rubber bath (such as are used for hypo) filled with the developer, and immersed in a vessel of cold water. The vertical position of the plates would prevent any sediment in the developer settling upon the films.

The formulas here given are selected from nearly fifty experimental developers, prepared with various emulsified silver salts, combined with different developing agents. They illustrate the preparation of argentic emulsions and the combination, in a chemically passive condition, of such emulsions with reducing agents, in photographic developers.

Much experimental work remains yet to be done to determine the formula best adopted for use. The gelatine and the silver salts have a tendency to slow the action in development. It is desirable that the time of development should be shortened, and the electrolytic action of the silver salt made more energetic.

W. P. Jenney.

Correspondence.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: It may be of interest to our amateur friends to know how to succeed with amidol, and as I have seen no formula just such as we have found to work with wonderful clearness and brilliancy I will for the benefit of those who have not succeeded give a practical account of my method.

Exposure should be less than that required for other developers. To develop we have a small scale for weighing dry all the chemicals. Formula as follows: Water, 7 ounces, at temperature, 70 deg. Fahr.; soda sulphite, 3½ drachms. Dissolve, add 20 grains amidol and 30 grains bromide potassium. Dissolve by stirring with glass rod. This takes but a few minutes, and will develop 2 = 8 x 5 plates in from 7 to 12 minutes, and if a warm day, say, 80 to 90 deg. Fahr. in a little less time, but if the bath and room are less than 70 deg. Fahr. do not get proper density without in tensifying, which is a very simple process.

After fixing in an acid bath made as follows:

Water	16 ounces
Hyposulphite soda	8 ounces
Soda sulphite	1 ounce
Sulphuric acid, C. P.	½ drachm
Chrome alum	½ ounce

dissolve the hyposulphite soda in 16 ounces of water, sulphite of soda in 3 ounces sulphuric acid, put in 1 ounce of water, and add it slowly to the soda sulphite, then add it to the hyposulphite. Dissolve the chrome alum in 8 ounces of water and add that. Now make your bath to one quart by adding water. A plate cleared to this bath kept at 65 deg. Fahr., or below, will not frill in the hottest weather, and will clear fifty plates or more, doing it quickly, and helping give brilliancy. After washing 40 minutes put the plate into a bath of water 8 ounces, bicbloride of mercury half an ounce, bleach it until it looks white, if the plate be not half dense enough. If nearly dense enough bleach less. Wash a minute under the tap, then put it in a bath of water 8 ounces, soda sulphite 2 ounces, sulphuric acid 20 drops. All of these solutions keep well and can be used repeatedly. When the plate is black again viewed from the glass side, wash I5 minutes and dry in the dark-room slowly. No one need fail using amidol if manipulated thus. More exposure if accidental will show when developing by the image quickly appearing, then have a dish of cold water at hand, immerse the plate in it for a few seconds and return it to the developing bath, and if good judgment be used a soft brilliant negative will result. Yours truly,

J. R. Smith.

Notes and News.

The firm of A. S. Aloe & Co., St. Louis, Mo., has been dissolved owing to the death of the senior member, Mr. A. S. Aloe.

The business will hereafter be continued by the A. S. Aloe-Co. a corporation created and existing under the laws of the State of Missouri, and that said corporation assumes all assets and liabilities.

The corporation, as successors to A. S. Aloe & Co., has for its officers, Sidney A. Aloe, President; David B. Aloe, Vice-President: Louis P. Aloe, Secretary and Treasurer.

The business will be conducted as heretofore.

The Editorial Table.

The Engraver and Printer for June, just received, is an excellent number in every way and contains much of interest to photographers. It contains a handsome frontispiece in colors illustrating an article on American color processes.

From The National Photographic Emporium of Baltimore, Richard Walzl, proprietor, we have received a neat little catalogue on white and gold issued as a souvenir of the twenty-fifth business anniversary of this well-known house. Although the size is of a small and handy form, it appears to contain detailed information regarding every kind of photographic requisites necessary for the photographer,

A Suggested Improvement in the Correction of Lenses for Photomicrography, Photography and Photastrography. By Henry G. Piffard, A.M., M.D.

This pamphlet is a reprint of an interesting paper which appeared in *The American Journal of the Medical Sciences.* Dealing with the difficulty of the dissimilar positions of the actinic and visual foci, the author points out how this is overcome in ordinary photography, but still leaves something wanting in photomicrography. Isochromatic plates sensitive to yellow and feebly to blue are now articles of commerce. These he employs, and constructs a lens corrected for yellow instead of a slight over-correction in the blue direction, as is usual. He says:

"If now the objective be corrected for yellow instead of for blue or violet light, the negative being made on one of these yellow sensitive or so-called 'orthochromatic' plates, there should be an exact correspondence of the visual and chemical foci, and the resulting picture should be superior to one that could be obtained by the ordinary procedures—that is, an under-corrected lens and blue-sensitive plate; and at the same time the objective would not have its visual excellence impaired, supposing, of course, that the optician performs his part of the work with care and skill.

"In order to test the practical value of this theoretical reasoning, I requested Mr. H. R. Spencer, now of the Spencer & Smith Optical Co., of Buffalo, N. Y., to calculate the formula and construct a lens which would fulfill the stated requirements. The result was a lens of 1/6" equivalent focus, and possessing a numerical aperture of 1.35. With this objective I have resolved and photographed the *Amphipleura pellucida* in lines, and have photographed both the *Navicula rhomboides* and the *Van Heurckia crassinervis* in lines and beads."

Our Quarterly Competition.

In order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.
2. The camera must be held in the hand during the exposure.
3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.
4. The prints must be mounted but not framed.
5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

ENTRIES RECEIVED THIS WEEK:

Ajax. Ajax, 2.

Queries and Answers.

108 W. J. WILEY, Aurelia, Iowa.—1. I have seen it recommended to acidify or neutralize the ordinary sulphite of soda by sulphurous acid water. Will it not do to use sulphuric acid?

2. Or would it not do just as well to neutralize with a little metabisulphite of potash?

Would it not be a good plan to make up a good lot of sulphite solution, or use all of a package or box when opened, making it neutral. Thus having it already mixed and neutralized for any developer?

Would this mixing and neutralizing keep it from changing to sulphate, etc., or in order to keep it right should, or would it be advisable to keep in full bottles well-stoppered, in order to exclude all air. Then, as I say, will all this keep it from changing to sulphate?

3. What is the test in solution or otherwise for sulphate?

Will neutralizing thus be all right for eiko? I made up some eiko with such, and it seemed to throw down some of the eiko (I presume it was) to the bottom.

4. Why do you make the following difference of sulphite in eiko formulas? (Eiko formula in TIMES, Q. & A., April 8, 1892, and "Instructor," page 43.) Making it stand thus:

TIMES, April 8, 1892.

Eiko	120	grains
Potash, carb	120	grains
Neutral Sulphite	11½	ounces
Water	8	ounces

"Instructor."

Eiko	120	grains
Potash, carb	120	grains
Sulphite	1½	ounce
Water	8	ounces

I am using eiko for flash-light work. It has been two or three years since I tried to use pyro to speak of, have used hydro or eiko.

5. I mixed up some pyro with metabisulphite of potash as preservative equal weights. It seems to preserve all right, but when I come to mix in either potash or anhydrous soda the solution is cherry red almost immediately. I do remember mixing up pyro solution once by Carbutt's formula, sulphite and sulphuric acid, which did the same thing. I then laid it to the pyro being a little discolored. This time the pyro looked bright, white and nice. Could it be in the water? It can not be in the meta, then, as it did so with sulphite for me once or twice before. I made allowance for the meta neutralizing a certain per cent. of alkali. 10 grains meta neutralizing, 5 grains anhydrous soda. Is this right?

What is comparative strength of anhydrous carbonate of soda with ordinary carbonate dried? Do not know if I am quite right on strengths.

108 *Answer.*—1. Commercial sodium sulphite is stated to always contain carbonate. When neutralizing the alkaline salt with sulphurous water the product is sulphite, and if with sulphuric, sulphate of sodium.

But sulphate being a powerful restrainer you certainly do not want it.

2. Metabisulphite of potassium will do, but why not use the sodium salt. It is not advisable to mix salts with different bases, in this case at least.

There is really no need to speculate or to hypothsize on neutralizing alkaline sulphites, when a perfectly pure and neutral article of sodium sulphite is on the market. See advertisement in PHOTOGRAPHIC TIMES. The article is prepared by Dr. M. Anderson especially for being used with the modern developers.

3. Sulphite of sodium with sulphuric acid evolves sulphurous acid gas. Sulphate under the same circumstances will show no visible change. A solution of sulphate dropped in one of barium chloride produces the insoluble barium sulphate. With sulphite no change is visible.

4. A typographical error. The formula in the "Instructor" is correct.

5. By adding alkali the metabisulphite is neutralized, and its preserving property is destroyed.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Managing Editor.
CHARLES EHRMANN, } Associate Editors.
WALTER E. WOODBURY. }

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423 Broome Street, New York.

THE AMERICAN ANNUAL OF PHOTOGRAPHY.



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THE SCOVILL & ADAMS CO., PUBLISHERS,
423 Broome St., New York, U.S.A.

A LETTER WHICH EXPLAINS ITSELF.

WORLD'S COLUMBIAN EXPOSITION, DEPARTMENT OF PHOTOGRAPHY.

HARLOW D. HIGINBOTHAM, Manager.
C. D. ARNOLD, Official Photographer.

CHICAGO, July 2d, 1893.

THE SCOVILL & ADAMS CO.,
New York, N. Y.

Gentlemen:—I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography, World's Columbian Exposition.

All goods for this work were purchased from the best workshops of the world, with a view of obtaining the best possible results during their use, and of obtaining the largest possible salvage after the Exposition is over. Your apparatus is, in my opinion, the best made.

Very sincerely,

C. D. Arnold.

ANOTHER.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

Please insert the inclosed copy in THE PHOTOGRAPHIC TIMES for four weeks, at 25 cents per line, on the page of Business Notices.

I advertised but once in your paper and the result is that I have several new customers; whereas, I have a running advertisement in at least two other journals—new customers, or even correspondence, nix.

Samuel Frankenheim.
Practical Photographer,
August 1, 1893. 45 Fulton Street, New York.

"I AM MORE and more pleased with my Henry Clay outfit. I made a negative recently that I think is an all-around triumph for box, lens and shutter."

Val. W. Starnes,
Augusta, Ga.

VICI FOR PHOTO ENGRAVING.

HERETOFORE pen drawing for photo process reproduction have usually been made on salted paper sensitized with a solution of nitrate of silver. The present advanced state of the art of photo-engraving demands that the methods employed should be economical, speedy and sure.

A trial of Vici paper, a ready sensitized paper manufactured by C. E. Hopkins, Brooklyn, N. Y., for the above purpose, was so satisfactory that I now use it exclusively in the following manner: An exposure of from one to five minutes by electric lamp, of sunlight according to the density of negative, until the shadows are faintly visible. Develop according to the directions which accompany the paper, wash and paste the prints on a piece of glass. When dry burnish the surface with an agate burnisher, and proceed with the drawing, using a waterproof ink.

When the drawing is completed, bleach with a solution of bichloride of mercury, wash under the tap, and dry. If a slight yellowness remains after bleaching, it can be removed in a bath of weak nitric acid. The drawings can be easily removed from the glass by soaking them in water.

R. E. M. Surerkrop, Artist.

CHATTANOOGA, TENN.

TRY DR. ANDRESEN'S AMIDOL DEVELOPER.

Business Notices.

FOR SALE.—An old established photograph gallery on main avenue in New York City. Price, $650. For further information address "W. G.," care of PHOTOGRAPHIC TIMES.

WANTED—To buy Photo Gallery.
Box 442, Frederick, Md.

FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee,
Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

WANTED.—Partner with $1,500 for established commercial photograph business; $6,000 yearly profit. Advertiser cannot attend to business alone. Address
HUSTLER, PHOTOGRAPHIC TIMES Office.

A SELECTED PORTRAIT LENS, made by Dallmeyer, for sale. This lens has done some of the best known work in this country. It was a premium lens, originally costing over two hundred dollars. It can be seen at the warerooms of The Scovill & Adams Co. It goes to the highest bidder. Call for or address "PREMIUM LENS," 423 Broome St., New York City.

ANDRESEN'S PURE SULPHITE, for Amidol, Paraamido-phenol, Rodinal, Eikonogen, or Pyro. Use only Andresen's *Pure* Sulphite of Soda. (See advertisement.)

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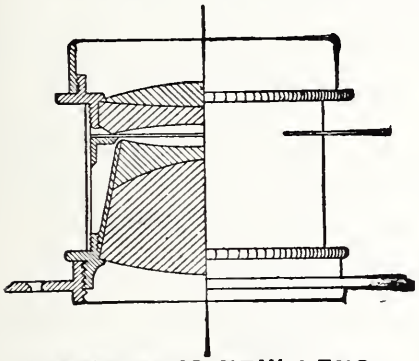
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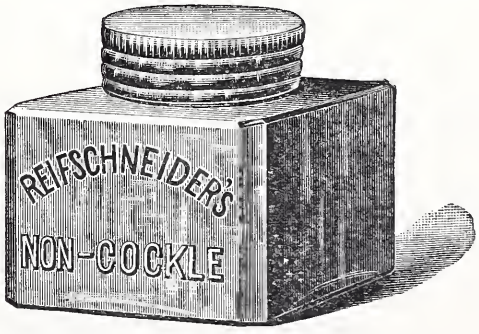
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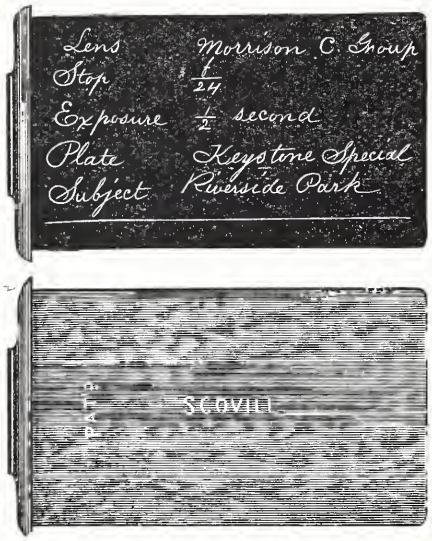
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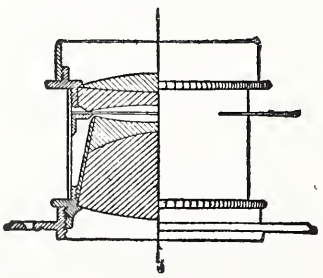
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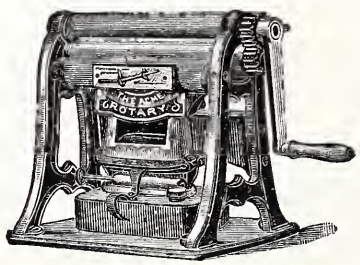
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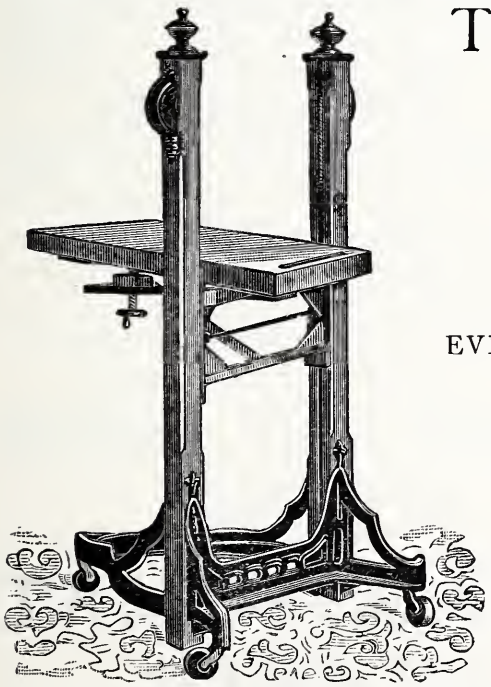
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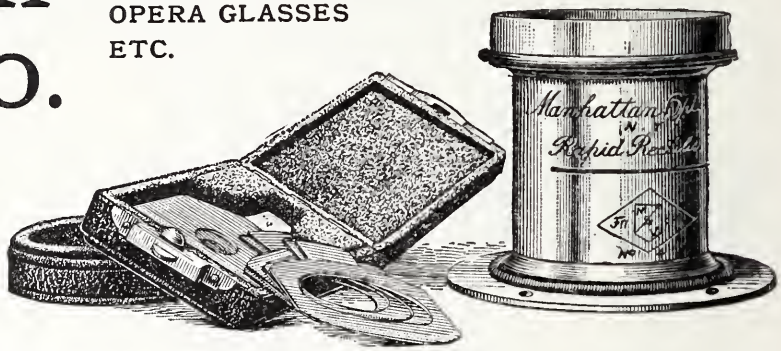
Sample Sheets, by mail, 10 cents each.

Manhattan Optical Co.

ROSS BUILDING,
Corner
Bank and Greenwich Streets,
New York.

MARINE GLASSES
OPERA GLASSES
ETC.

Telescopic Objectives



"M.&V."
"DAISY"
"EMIL"

MANUFACTURERS OF THE

PHOTOGRAPHIC LENSES

Tono Collodio

SIMPLEST; CHEAPEST, BEST.

FOR PROFESSIONALS AND AMATEURS.

Tones and Fixes all Brands of Collodion Paper in operation.

HAS NO EQUAL.

Gelatino

FOR ALL KINDS OF GELATINE PAPERS.

Tones and Fixes in One Operation.

HAS NO EQUAL.

REPAIRING DEPARTMENT—All varieties of Optical Lenses and instruments repaired.

GOLD AND SILVER MOUNTINGS————ALUMINIUM MOUNTINGS.

OUR SPECIALTIES:

BECK'S NEW SERIES "B" LENSES.
The Cheapest First-Class Lens ever produced.

BECK'S FRENA CAMERA.
40 Cut Films. No Holders required.
Perfect Shutter. Beck's Autograph Lens.

THE ILFORD PRINTING OUT PAPER.
Reproduces all the detail from the negative better than any other. It is easy to work and finishes superbly.

THE GENIE HAND CAMERA.
Interchangeable Magazine holding either 24 Films or 12 Plates. The Beck Lens. Most compact.

If your Dealer does not have the above, write

WILLIAMS, BROWN & EARLE,

PHOTOGRAPHIC & OPTICAL SUPPLIES,
N. E. Cor. Tenth & Chestnut Streets,
PHILADELPHIA.

WE HAVE JUST COMPLETED

THREE NEW SERIES ZEISS-ANASTIGMAT LENSES.

SERIES I.—Highest Grade Portrait Lens.
SERIES II.—Very Rapid Outdoor and Group Lens.
SERIES IIIa.—Instantaneous Outdoor Lens, Specially Suited to Amateur Use.

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ROCHESTER, N. Y., 515–543 N. St. Paul St.
NEW YORK CITY, cor. Fulton & Nassau Sts.

PHOTOGRAPHIC TIMES QUARTERLY COMPETITION.

No. 1 HAND CAMERA WORK.

This coupon to be cut out and forwarded with each set of pictures.

Nom de plume,.....

Name,.....

Address,.....

I hereby certify that the pictures entered by me are the results of my own work entirely.

Signature,.....

Remarks,.....

.....

DR. ANDRESEN'S AMIDOL ON TOP!

An arrangement has been made by the importers of the rival Amidols, by which the importers of the Hauff Amidol agree not to import or sell any more of that article in this country.

Dr. Andresen's Genuine Article

WILL HEREAFTER BE THE ONLY AMIDOL IMPORTED IN THIS COUNTRY.

We are the Sole Agents for Dr. Andresen's Amidol in this country. The prices for this energetic developer are as follows:

In 1 ounce cans	$0 75
" ¼ lb. "	2 75
" ½ " "	5 25
" 1 " "	10 00

Amidol Cartridges (making 16 ounces of developer):

In packages of 5	$1 00
" " " 10	2 00

If you have not yet tried this developer, send to us for a sample, with full directions for its use.

THE SCOVILL & ADAMS COMPANY,

Sole Agents for Amidol in the United States. 423 Broome Street, New York City.

FOR SALE BY ALL DEALERS.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

Price of Scovill Magnesium Compound.

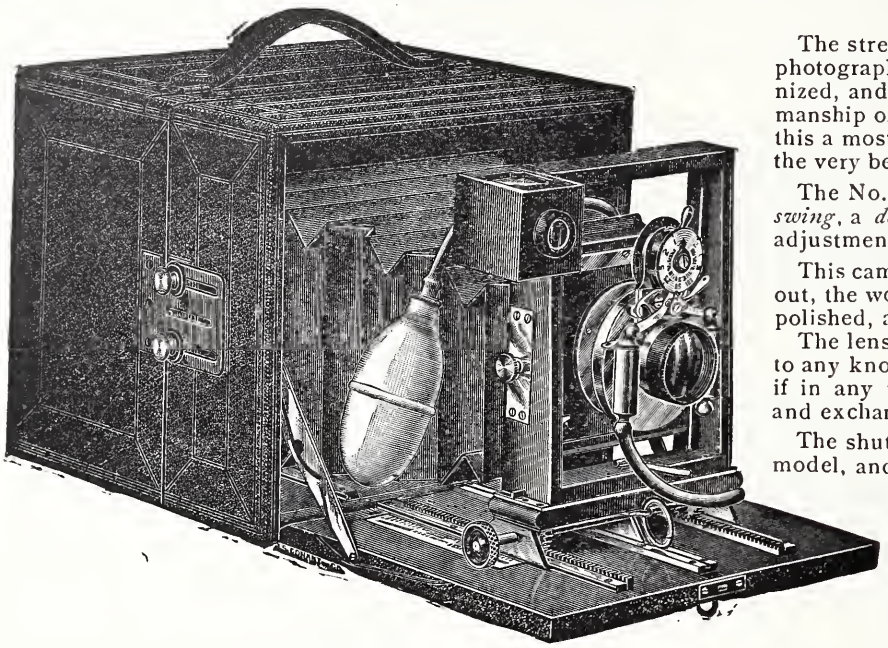
In ounce bottles, with fuses	$0 50
In quarter pound cans, with fuses	1 40
In half " " " "	2 65
In one " " " "	5 00

Price of Scovill Magnesium Cartridges.

	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
No. 2, " " "	80	9 00
No. 2½ " " "	1 20	13 00
No. 3 " " "	1 50	17 00

THE 5x7 FOLDING HAWK-EYE, No. 2.

With Taylor & Hobson, or Kamaret Lens, and Bausch & Lomb Improved Shutter.



THE 5X7 FOLDING HAWK-EYE. NO. 2.

The strength of the above combination from a photographic standpoint will be readily recognized, and the beautiful finish and fine workmanship of camera, lens and shutter, also make this a most desirable outfit for those who want the very best.

The No. 2 model has, in addition to the *double swing*, a *double sliding front*, thus giving every adjustment which will ever be required.

This camera is of extra fine hand finish throughout, the wood work being ebonized and French polished, and the leather is genuine morocco.

The lenses are guaranteed to give results equal to any known make of similar dimensions, and if in any way unsatisfactory, may be returned and exchanged.

The shutter is the latest and most popular model, and may be set for automatically timed exposures of from 1-100 of a second to 3 seconds with great accuracy, as well as for longer exposures in the usual manner. The lightness of this shutter, and freedom from noise and jar in quick exposure, also commend it.

Price, as above, with 3 F.W. Holders, for plates or cut films, $60
" Blair's Improved Roll Holder, with Automatic Tally, 9

Price, Blair's Film, per roll, 25 exposures, - - - - - $3
" " " " 50 " - - - - - 6

THE BLAIR CAMERA CO., Manufacturers,

BOSTON. NEW YORK. CHICAGO.

E. & H. T. ANTHONY & Co., Trade Agents, New York.

AT LAST

WE HAVE FOUND A PERFECTLY NEUTRAL AND CHEMICALLY PURE BRAND OF

Sulphite of Sodium

Which is so necessary in the preparing of developers, especially with

Amido, Para-amido-phenol, Eikonogen, Hydrochinon, Pyrogallol, and the other organic reducing agents.

Dr. M. Andresen, of Berlin, renowned for his discoveries of the modern developers, understood well the necessity of a reliable preservative of these substances when in solution, and he made

A Pure Sulphite of Sodium in Crystals.

THE SCOVILL & ADAMS CO. are Sole Agents for this much desired substance in the United States.

Price, in 1/4 lb. cans, . . 20 cents.
" 1/2 " " . . . 25 "
" 1 " " . . . 35 "

Ask your dealer for Andresen's Sulphite.



HIGGINS' PHOTO MOUNTER.

An entirely novel and superior adhesive,
Specially Prepared for Mounting Photographs,
Aristotypes, Scrap Pictures, Engravings, etc.

NOT A FLOUR OR STARCH PASTE, BUT A VEGETABLE GLUE,

Semi-fluid and always ready for use. Its consistency is soft and unctuous and it is absolutely free from lumps or grit. Spreads very smoothly and uniformly, adheres at once and dries quickly. Guaranteed not to warp, cockle, strike through nor injure the tone or color of any mount. Proof to decay, and the water will never separate, leaving the body stiff and hard, as occurs in pastes. Beautiful white color, and never changes. For either dry or wet mountings it is unequaled.

FOR SALE BY THE TRADE GENERALLY.

Prices in Screw-capped Jars: 3 oz., 15 cts.; 6 oz., 25 cts. 14 oz., 50 cts.
Also in one-half gallon and gallon jars. Three-ounce jar by mail, prepaid, 30 cents.

CHAS. M. HIGGINS & CO., SOLE MFRS.,
168-172 EIGHTH STREET, BROOKLYN, N. Y.

FOR SALE BY THE SCOVILL & ADAMS COMPANY.

Remember

THAT

"Three Crown"

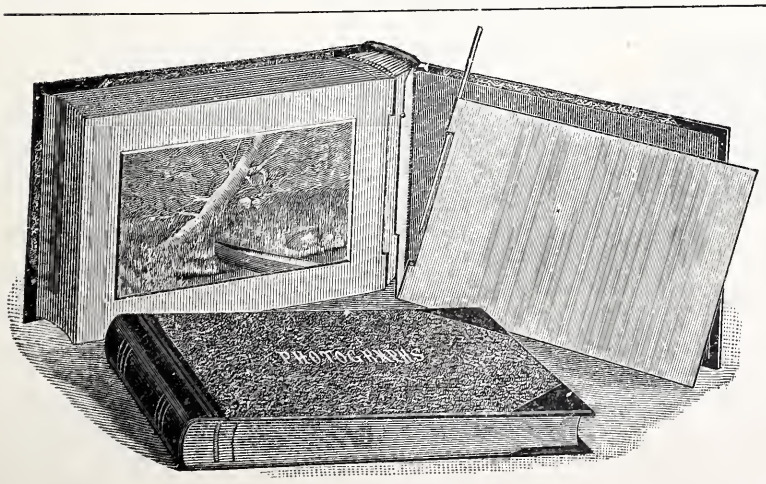
Albumen Paper

Is absolutely the BEST.

WHY?

Because none but the Best of the Rives Paper is selected for Albumenizing the THREE CROWN BRAND.

It is therefore free from the imperfections often to be found in other brands, which arise from imperfections in the plain paper and cannot thus be avoided.



IMPROVED SPRING BACK

ECLIPSE ALBUM.

PRICE LIST.

IMPROVED SPRING BACK WITH TWENTY-FOUR COLLINS CARDS. WHITE AND GRAY.

No. 1	6 x 7	cards	$2 25
No. 2	7 x 10	"	2 50
No. 2½	10 x 7¼	" upright	3 50
No. 3	10 x 12	"	3 75
No. 3½	12 x 10	" upright	4 25
No. 4	11 x 14	"	4 25
No. 5	14 x 17	"	7 00

Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome Street, New York.



EVERYTHING FOR THE CAMERA

SPECIALTIES.

— AGENT FOR —

Ross Lenses

NEW SERIES.
Concentric, Universal Symmetrical, Working in F 5 6.
Wide Angle Symmetrical, and Zeiss Patent Series.

Optimus Lenses,
Optimus Cameras,
Obernetter Gelatino Chloride of Silver Emulsion Paper,
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Cullen's Negative Washing and Drying Racks,

Kodak Cameras,
Kodak Developing & Printing
Bromide Enlarging,
All brands of Dry Plates, Pure Chemicals and Supplies of all kinds,
All the latest Hand and Tripod Cameras.

Descriptive Catalogues of any of the above sent on receipt of 5 cent stamp for postage.

W. C. CULLEN, 61 William Street, New York.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

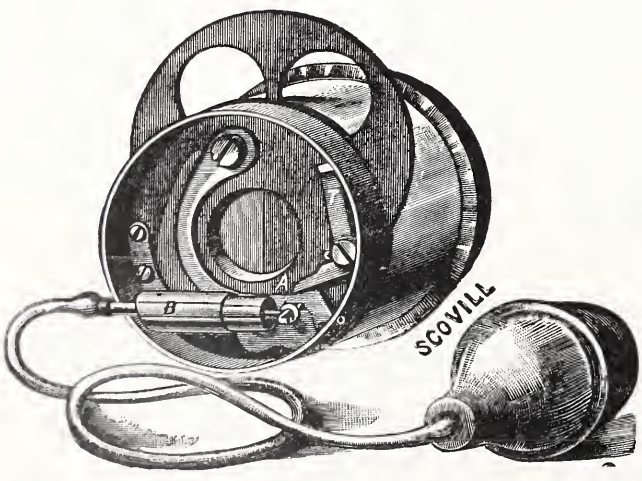
319 Washington St. BOSTON, MASS.

Revised price-List sent on application.

Correspondence solicited.

The Elite Shutter.

For Timed or Instantaneous Exposures.



This economical shutter was especially designed for use with Waterbury Lens.

DIRECTIONS FOR USE:

To set the shutter for snap work, push the point A as close to the piston B as it will go. Push arm T as close to the edge of the lens as possible. The shutter is now set for quick work. When ready to expose, give a hard, quick squeeze on the bulb.

FOR TIME EXPOSURE:

Press arm T as close to centre of lens as it will go. Push the point A close to the piston B. For exposure, squeeze and hold the bulb, which will open the shutter; when the time of exposure is up, release the pressure upon the bulb and the shutter will close.

PRICE, $3.50.

Fitting to Lens, = = 50 Cents.

THE SCOVILL & ADAMS CO.,

423 BROOME STREET, NEW YORK CITY.

Prosch Manufacturing Co.

Manufacturers to Order of PHOTO SPECIALTIES IN METAL

AND THE WORLD RENOWNED

TRIPLEX SHUTTERS.

Athlete Shutters. Triplex Stereo Shutters.

Magnesium Storage Flash Lamps.

Recommended alike by Amateurs and Professionals as the BEST for steady, hard use on ALL classes of work, from the Gallery to the Race Track. For descriptive circulars, cuts and further information, address

Prosch Manufacturing Company,

389 BROOME STREET, NEW YORK.

Look out
for
imitations
of

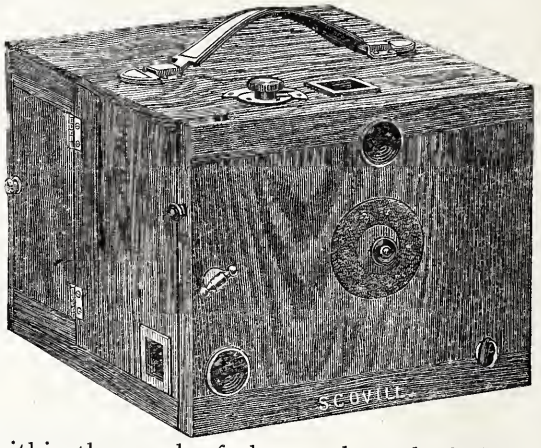
WATERBURY CARDBOARD.



Look out
for the
genuine, too,
and see
that you
get it.

It is
the Best
and Cheapest.

IMPROVED KNACK DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera,	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

The "**Boston Mat**" was designed by WM. G. REED, of the Boston Camera Club, for the purpose of simplifying the task of mounting slides, having the openings all *harmonious*, if not uniform, and to enable the maker to so prepare a set that all will "register" when projected.

TESTIMONIALS.

MR. WM. G. REED.

Dear Sir:—Your mat is the "greatest labor-saving invention of the age." Please send me two hundred more.

MR. GARRISON REED.

Dear Sir:—I have just returned from Japan with several hundred unmounted slides, which I wish to mat with the "Boston Mat." I have told many people of the excellence of your mat, and shall continue to do so, for to me it seems the only sensible one.

MR. WM. G. REED.

Dear Sir:—I have found your ingenious lantern-slide mat exceedingly convenient and useful.

The originals of above letters may be seen in our New York Office.

The Boston Mat

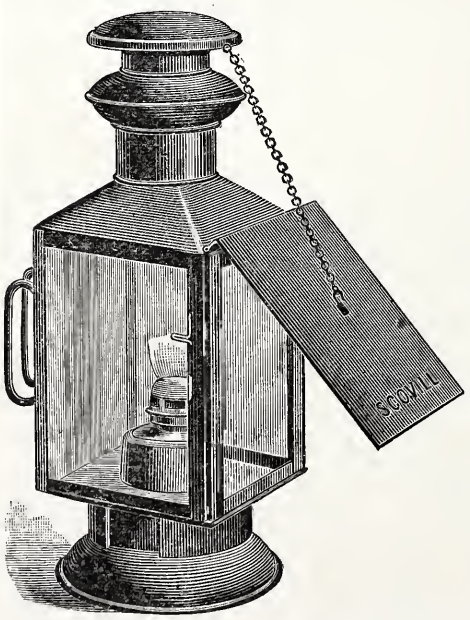
(PRICE FIFTY CENTS PER HUNDRED),

Is for sale by the trade generally. If your local dealer has none, send order to

THE SCOVILL & ADAMS CO.,
SOLE AGENTS,
423 BROOME STREET, NEW YORK.

THE SCOVILL PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

CHILDHOOD

A MAGAZINE FOR PARENTS,

EDITED BY DR. GEORGE WILLIAM WINTERBURN,

Is the only magazine in the world of its kind. It contains a mine of interesting knowledge set forth with all the piquant grace of the greatest living authors. Every article is written especially for it by such writers as

JULIAN HAWTHORNE, ELIZABETH STUART PHELPS,
CHARLES DE GARMO, MARIA LOUISE POOL,
MONCURE D. CONWAY, LOUISE CHANDLER MOULTON,
MINOT J. SAVAGE, HELEN CAMPBELL.

Besides this it has five regular departments, unique and unrivaled in their different fields: "THOUGHTS AND SUGGESTIONS," by Florence Hull. "UNTIL THE DOCTOR COMES," a page of free advice by the Editor that is alone worth the price of the magazine. "THE TWILIGHT HOUR," the serial story of the child's inner life, by Adelaide Grace Lytton. "MOTHER'S QUERIES," by Auretta Roys Aldrich, and "SAYINGS AND DOINGS," the Harper's Drawer of CHILDHOOD, by Alan Chadwick.

Ten Cents a Number. One Dollar a Year.

CHILDHOOD,
78 Maiden Lane, New York.

A GREAT CONVENIENCE IN DEVELOPING DRY PLATES.



Pelletone

PYROGALLIC

ACID TABLETS,

Put up in bottles, each containing 100 2-grain (*exactly* 2 grains) tablets of

SCHERING'S

Unrivaled Pyrogallic Acid

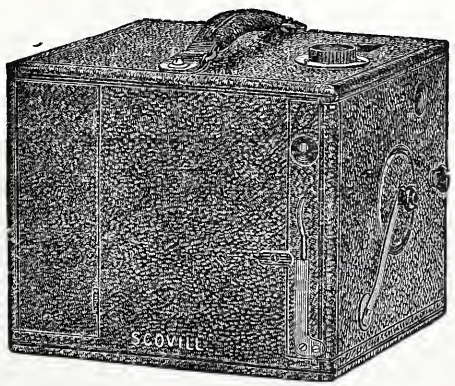
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Price per Bottle, reduced to 40 Cents.

FOR SALE BY ALL DEALERS, AND

THE SCOVILL & ADAMS CO

THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size, It is

The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

Price List.

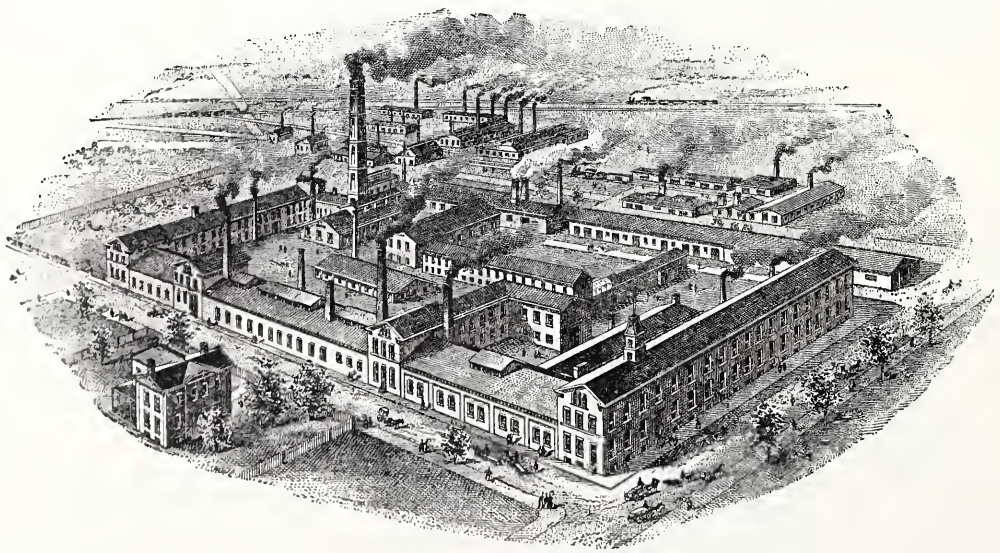
	Leather Covered
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
5 x 7 Waterbury Detective Camera, with 2 Double Holders	40 00

FOR SALE BY ALL DEALERS.

A. M. Collins
Manufacturing Company

would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.



CHAS. COOPER & CO.,
194 Worth Street, NEW YORK,
MANUFACTURING
CHEMISTS and REFINERS
OF PHOTO WASTE.

Works at **NEWARK, N. J.**

CODE

For Ordering N. Y. ARISTOTYPE PAPER by Telegraph.

SPECIMEN ORDER USING CODE.

Send 50 gross Cabt's Pense, 6 dozen 20 x 24 Pense. and 2 dozen 10 x 12 Pink.
Wire us: "*Express fifty Plaster, six Saddle, two Brake.*"

Size.	Price, per doz.	1 doz. Pense Code Name.	1 doz. Pink Code Name.	Price, per gross.	1 gro. Pense Code Name.	1 gro. Pink. Code Name.
3¼ x 4¼	$ .15	Wheel	Frame	$1.50	Door	Eave.
4 x 5	.20	Head	Wrench	2.00	Window	Tank.
3 x 4 Mantello	.15	Bearing	Rim	1.00	Moulding	Pipe.
3⅞ x 5½ Cabinet	.20	Tangent	Hub	1.70	Plaster	Bath.
4 x 6	.20	Axle	Fire	1.80	Roof	Basin.
5 x 7	.33	Spoke	Cork	3.50	Lath	Casing.
5 x 8	.35	Valve	Rubber	4.00	Siding	Parlor.
5½ x 7¾ Paris Panel	.40	Handle	Nickel	4.00	Board	Library.
6½ x 8½	.60	Bicycle	Pump	6.00	Glass	Dining.
7 x 9	.65	Crank	Cushion	7.00	Hinge	Barn.
8 x 10	.70	Pedal	Guard	8.00	Rafter	Stall.
10 x 12	1.00	Cone	Brake	10.00	Joist	Dirt.
11 x 14	1.30	Chain	Spring	15.00	Stair	Stone.
14 x 17	2.00	Sprocket	Lamp	22.00	Rail	Mortar.
16 x 20	2.75	Enamel	Fork	30.00	Landing	House.
18 x 22	3.50	Gear	Post	40.00	Cellar	Shingle.
20 x 24	4.00	Saddle	Bolt	44.00	Furnace	Banister.
Cabinet Seconds				1.00	Ceiling	Fixture.
4 x 5 "				1.00	Cord	Fastening.

CODE

For Ordering KALONA PAPER by Telegraph.

The BEST and CHEAPEST COLLODION PAPER Made.

SPECIMEN ORDER BY CODE.

Ship 200 gross Cabinets, 50 gross Cabinet Seconds, 10 dozen 20 x 24.
Say: "Express two hundred *Chimney*, fifty *Stamp*, ten *Hall*.

Size.	Price, per doz.	Code Name. 1 doz.	Price, per gross.	Code Name. 1 gross.
3¼ x 4¼	$ .15	Chair	$1.50	Flue.
4 x 5	.20	Desk	2.00	Alcove.
3 x 4 Mantello	.12	Table	1.00	Screen.
3⅞ x 5½ Cabinet	.20	Cloth	1.70	Chimney.
4 x 6	.20	Curtain	1.80	Brick.
5 x 7	.33	Carpet	3.50	Paint.
5 x 8	.35	Stool	4.00	Stove.
5½ x 7¾	.40	Rack	4.00	Trap.
6½ x 8½	.60	Stand	6.00	Slate.
7 x 9	.65	Lounge	7.00	Stain.
8 x 10	.70	Book	8.00	Light.
10 x 12	1.00	Lamp	10.00	Plate.
11 x 14	1.30	Piano	14.00	China.
14 x 17	2.00	Cover	22.00	Shade.
16 x 20	2.75	Radiator	30.00	Cushion.
18 x 22	3.50	Bracket	40.00	Shelf.
20 x 24	4.00	Hall	44.00	Pipe.
Kalona Cabinet Seconds	For Proofs and Plain Printing		1.00	Stamp.
Kalona 4 x 5 Seconds			1.00	Picture.

A FRESH SUPPLY ALWAYS ON HAND.

THE SCOVILL & ADAMS COMPANY.

The Photographic Appetite increases by what it feeds on. The beginner is usually content to start with a modest outfit, but as interest grows the hunger for more artistic results calls for better facilities so that the apparatus must constantly be of a more improved pattern and contain all the latest fixings, till finally the question of improvement is entirely one of the value of the lens.

To suit this growing appetite we make a line of camera boxes unequalled for workmanship and convenient appliances. We can supply any stage of hunger and make to order to suit any whim. Any photographic question cheerfully answered. Send for our Catalogue.

The Rattler, $5.

The Waterbury, $25.

The Triad, $35.

The Henry Clay, $55.

Stereoscopic, (Henry Clay) $75.

The Scovill & Adams Co.,

423 Broome Street, New York.

"STOP"

Right where you are! Do not turn another leaf until you have read every word on this page. We feel a delicacy in publishing the following, lest it may hurt someone's feelings, but we must consult our own interests and publish the facts "verbatim" as they come to us. We do not, as a rule, favor publishing testimonials, as we are not in the "patent medicine" business, but the following, being so overwhelming and wholly unsolicited, we feel that we are at liberty to publish it. So here you have it:

April 15, 1893.

The Obrig Camera Company, 119 *Broadway, City.*

Gentlemen:—Having had some trouble with Aristotype Paper, we wished to select the best commercial paper that we could find. For this purpose I purchased a package of each of seven kinds of paper, namely:

SOLIO, PERFECTO, PARAGON, ARISTO, OMEGA, B. &. P., N. Y.

As we wish to select the paper for photographing in our manufactory, as well as for other purposes, we wish one that could be developed with a simple bath. Prints were made of each of these papers in the ordinary manner, and toned in a plain bicarbonate of soda bath. Of these papers the Perfecto was decidedly the best paper of all that we tried. It was pleasing in printing, pleasing in every operation that was performed, and will be adopted by us, and continued as long as the quality continues what it is.

It may interest you to know that next to this paper, in convenience and results, was the Solio paper made by Eastman. Please send us four dozen 5 x 7, two dozen $6\frac{1}{2}$ x $8\frac{1}{2}$, one dozen 8 x 10 Perfecto paper. We shall be pleased to have this as soon as you are able to obtain it.

Yours truly,

G. W. HUNT COMPANY,

C. W. Hunt, *President.*

I enclose a print on "Perfecto" paper.

April 18, 1893.

The Loucks Aristotype Company, Jamestown, N. Y.

Gentlemen:—I recently purchased the various papers in the market, the most of them from the Obrig Camera Company, in order to see which was the most available for our use. I enclose you a letterpress copy of my letter to the Obrig Camera Company, stating the results of that experiment, thinking that you might be interested to know.

Yours truly,

C. W. HUNT COMPANY,

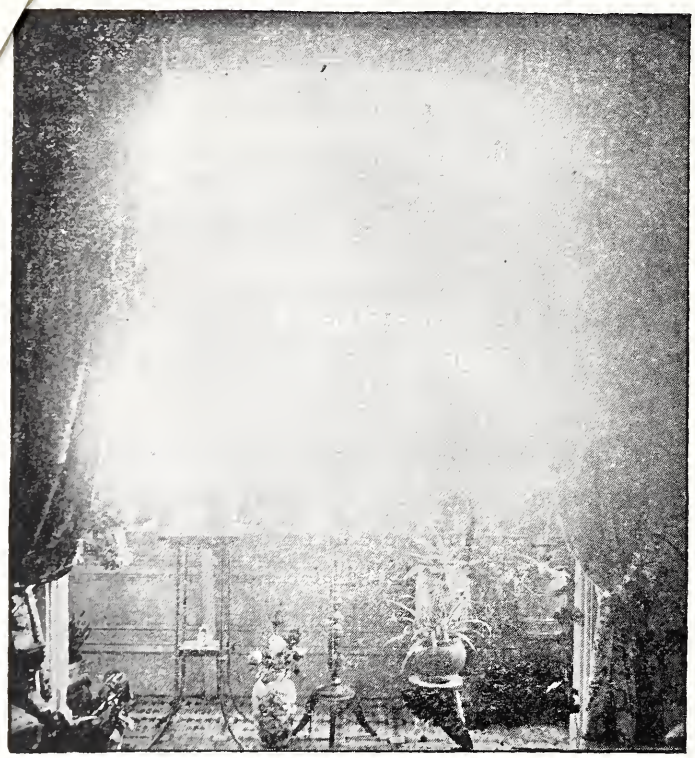
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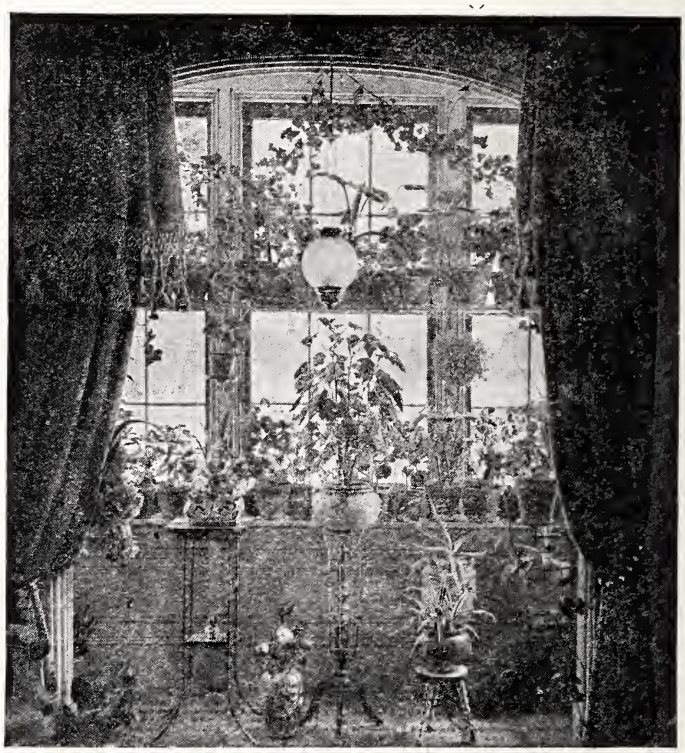
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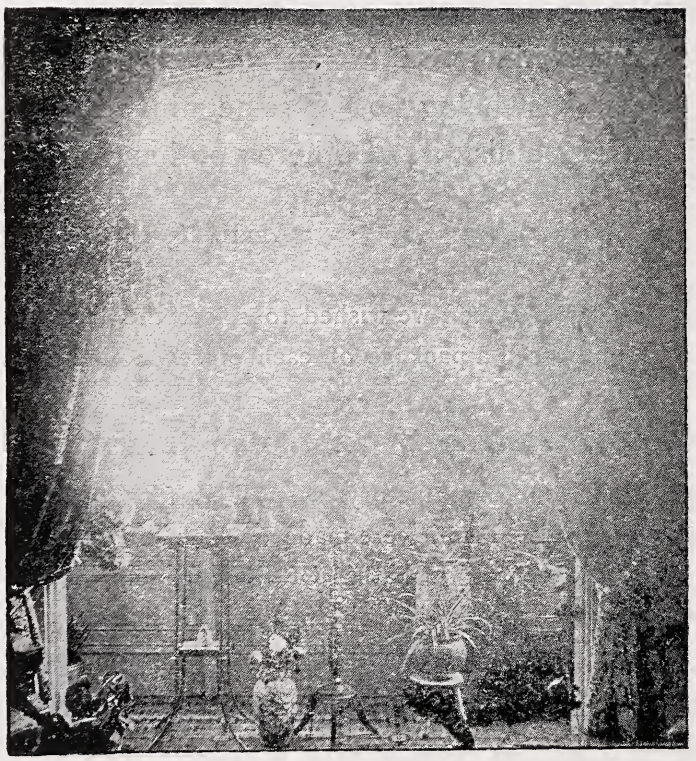
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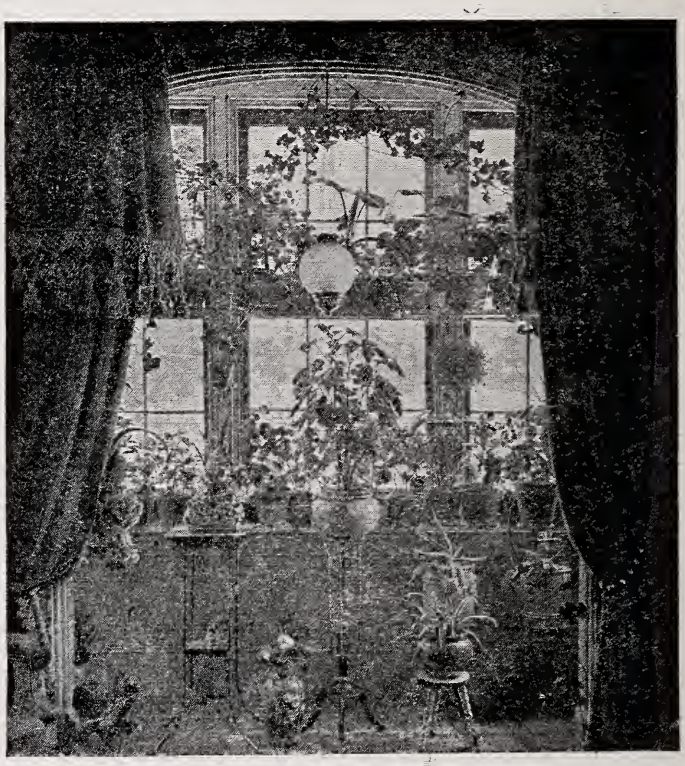
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"THREE CROWN" ALBUMEN PAPER ALWAYS GIVES SATISFACTION.



H. J. Newton, Photo.

MULLENS.

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. AUGUST 18, 1893. No. 622.

MULLENS.

OUR frontispiece this week is from a negative by the veteran photographer, Henry J. Newton, of New York. "It is a study of mullens by the roadside, and only three hundred feet from my country residence (at Nyack)," writes Mr. Newton. "These roadside pictures are everywhere in the country, but are unnoticed except by those who have some artistic education." Certainly no one would accuse Mr. Newton of being devoid of an artistic insight. He has a keen eye to discover, and a skilled judgment to depict the beautiful in nature. The present picture is no exception, it is a simple subject faithfully rendered.

DEFERRED FIXATION.

IN the old wet-collodion days it was by no means an uncommon thing for the photographer, after developing his plate, to well rinse it in water, drop it into a grooved box, and leave the fixing operation until a more convenient opportunity occurred. This is very rarely done in the case of gelatine dry-plates. Probably there are many who have not imagined it possible. To the photographer working in his dark-room, with everything handy, such a proceeding is totally unnecessary; it is to his advantage to have the negative fixed and dried ready for printing at the earliest opportunity. But the tourist, who prefers to develop his plates *en route*, would find considerable advantage in dispensing for the time the fixing process and all the necessary operations for the entire elimination of the hyposulphite salts. After developing and rinsing all that would be necessary would be to place the negatives in a suitable grooved box, and, on returning, the whole of the work could be performed at one operation.

It would appear that many imagine that by deferred fixation the negatives would suffer deterioration. Under certain circumstances this is so; but on the other hand it is quite possible to take such precautions that negatives may be produced in no way inferior to those fixed directly after developing.

First we must consider the action of the light upon a developed but unfixed plate. We know that an ordinary dry-plate exposed to light will change to a distinct violet-gray color. If the plate is then fixed a veil is the result, but this is really of such slight density that it by no means follows that the printing qualities of the negative must be in any way impaired. But with a plate which has been developed greater precautions are necessary. If any trace of developer be left in the film, a damaging fog will be the result, on exposure to light before fixation, and further if a considerable quantity of developer is retained in the film a veil will be produced without the action of light in the same manner that an unexposed plate will fog if left in the developer for a sufficient length of time. In this connection we may observe that the ammonia developer has the least action owing in all probability to the volatile nature of the ammonia which, on evaporating, leaves an inert substance in the film.

The necessity, therefore of either entirely eliminating the developer from the film or of preventing its further action is clearly seen. To give a prolonged washing would probably be as much trouble as to fix and wash, so the saving in time which is the idea of deferred fixation would not be obtained.

To render the action of the developer inert there are several ways. Perhaps the most successful is to treat the plate with a strong solution of potassium bromide, say 10 per cent. After developing, the plate is rinsed under the tap and the bromide solution applied. After this the plate can be again rinsed for a few seconds and placed in a grooved box until the traveler's return to his own dark-room.

Another method of preventing the further action of the developer upon the sensitive film is by means of an alum solution rendered acid. For this purpose we employ a saturated solution of alum and add citric acid to it until it shows a very decided acid reaction upon litmus blue paper.

In deferring the fixation of negatives, notwithstanding the precautions recommended to be taken, it is of course important that they be shielded from the light as much as possible without inconvenience. If kept shut up in a grooved negative box which is only opened to admit of other negatives they can be kept for months, and when fixed will show no appreciable difference to negatives fixed immediately after developing.

When traveling in Madeira and the Canary Islands some few years ago, the barrel of hypo we brought with us slipped from the hook when unloading in Funchal Bay. We tried to obtain this fixing salt at the local chemist. This worthy only possessed about half a pound for which he demanded an amount equivalent to about a dollar and a half. We did not purchase but adopted the plan of deferred fixation we have pointed out. Every negative, after developing, was thoroughly rinsed, flooded with bromide and well washed. On returning home some nine months later we, in a few hours, fixed and washed some two or three hundred negatives. These are perfect as regards clearness and in every other respect, proving conclusively that, provided proper precautions are taken, it is absolutely immaterial whether the negative is fixed immediately after development or twelve months later.

ELIMINATION OF SODIUM HYPOSULPHITE.

As a certain and simple means of eliminating the last traces of fixing soda from negative or positive proofs, *L'Amateur Photogr.* recommends the alkaline salts of manganese, especially the permanganate of potassium. These salts are powerful oxydisers, in consequence of which, the hyposulphite salt is changed to the entirely harmless sulphate.

Permanganate of potassium comes in beautiful, reddish-violet crystals, and is soluble in from 15 to 16 parts of cold water. In contact with a great number of bodies it loses oxygen, becomes discolored and peroxide of manganese is set free. To test the energy of the salt, add to a small quantity of a very much diluted solution of it, a few drops of hypo solution of any concentration. The solution discolors immediately and a copious black precipitate is thrown down, the permanganate of potassium is decomposed, its oxygen is given off in favor of the hyposulphite, changing it to sulphate of sodium.

In practice the method may be adopted as follows :

The negative removed from the fixing bath is but superficially washed and at once transferred to a much diluted solution of permaganate of potassium of light violet color. Discoloration follows at once. The process should be repeated several times.

When the solution retains its color, all traces of hypo are destroyed and the negative may be set aside and dried. It is of the highest importance to employ the permangate solution very much diluted; if more concentrated, and by longer continued action, the salt would attack the gelatine film and the paper respectively, finally coloring the whole film or print yellow.

Permanganate of potassium oxydizes all organic substances. The yellow color may, however, be removed by treatment with organic acids, citric, tartaric, oxalic acids and others.

Doubtless the method is adaptable to negatives (excepting perhaps those developed with ferrous oxalate) as well as to paper positives.

EDITORIAL NOTES.

Captain Abney in one of his recent articles says that what the piano-organ is to the piano so is the photograph to the artist's sketch. There is the want of expression in the former which is present in the latter. This may be true of many photographs, a very large majority in fact, but still there are many now who have succeeded in proving how the beauty of the human feeling can be bestowed upon the art.

There are men whose pictures stand far and away above other pictures, of such striking individuality that, notwithstanding they are photographs, the author of them can be named. Such men are, however, few ; we would like to see many more in this country.

A knowledge of light sensitive compounds is apparently dangerous when possessed by unscrupulous persons. An English tradesman was recently the victim of a villainous action. It would appear that he was in the habit of displaying loyal effusions inhis shop window in a prominent part of the city of London. At the time of the recent royal wedding in that country, a stranger entered and handed him

a sheet of paper on which were written some congratulatory verses addressed to the Duke of York and his bride. This he placed in his window to be read by all passers-by. In a few hours, however, the loyal verses which were written with a blue ink disappeared, and in their place an announcement of an entirely opposite character; a gross and villainous libel concerning the Duke of York appeared in its place.

We have no doubt that a fugitive dye like chinolin blue for instance was used for the congratulatory verses, and a colorless ink of silver nitrate for the libellous ones.

While the ill-fated "Victoria" was sinking, an officer on board another vessel quietly secured an instantaneous photograph of it. This photograph was used in the court-martial on the loss of the ship, and has created considerable sensation. The vessel is shown with her stern in the air and the screws rapidly revolving. This clear and unimpeachable record must be of far greater value than the reports of eye-witnesses, as confusion and excitement are often likely to cause conflicting accounts to be rendered. But who will dispute the evidence of the camera?

To recover platinum from developers used in platinum printing, the old solutions are heated to 82 deg. C., and to each 4 parts of oxalate 1 part of saturated solution of ferrous sulphate is added. A black precipitate of finely divided metallic platinum settles down, the supernatant clear liquid is removed and the precipitate washed. After which it may be converted into chloro-platinite, or be sent to the refiners.

It does not pay to work the acid clearing baths.

Herr Tonger remarks in *Photographisches Archiv* that he has not been able to prepare hyposulphite of ammonium recently proposed as a fixing agent. The proper way to make it, is said to be to decompose a solution of hyposulphite of calcium with ammonium carbonate and subsequent evaporization. It is a crystalline mass consisting of acidular needles or rhombic plates, easily deliquescent in the air.

Rammelsberg's formula for this salt is:

$$3(NH_4)_2S_2O_3 + H_2O.$$

The substance is at present too costly to be used as a photographic fixing agent.

Referring to the communication of an old N. P. A. on another page, and his criticism of the conduct of The Photographic Times in reporting the recent Convention of the P. A. of A. we can only say that we endeavored to make our report a fair one in every particular, and were governed by no prejudices or personal feelings whatever. We are glad to observe that our correspondent at least gives us credit for fairness. It is not for us to advise the dissolution of the present organization, or the formation of a new one; we simply reported the Convention justly and fairly. It is for the members themselves to decide the policy of their own organization.

Mr. Place in his address before the Convention of the P. A. of A. at Chicago recommended the establishment of a school of photography in New York. Evidently Mr. Place does not read the literature of his profession. If he did he would be aware that such a school already exists. The Chautauqua School of Photography, now numbering nearly one thousand students, has long passed the experimental stage, and is an established institution. It has winter classes in New York during the fall, winter and spring months, and summer classes on the Assembly Grounds at Chautauqua Lake, N. Y. It also conducts large corresponding classes, which include members in various parts of the world. A comprehensive article on the Chautauqua School of Photography, with illustrations, will be contributed to the 1894 volume of "The American Annual of Photography" by its chief instructor, Professor Charles Ehrmann.

According to the *British Journal of Photography* we learn that Professor Schumann has been discussing at length the subject of photography of the shortest ultra-violet rays of the spectrum. "He describes the present position of our knowledge on the subject, and while detailing the results of a portion of his investigations states that years may probably elapse before he completes his investigations. He describes how the earliest important results were dependent upon an examination of fluorescent effects, a method which has lost ground as sensitive plates have increased in efficacy. Becquerel's were the first investigations, but, being made on a basis of a spectrum-formed glass, they did not extend very far. Stokes, by using quartz, obtained a spectrum which, measured from Frauenhofer's H., was, in the ultra-violet, twice as long as the total visible spectrum. With the electric light it was from six to eight times as long. His results were given to the Royal Society on June 19, 1862, and on the same day was read a paper from Miller on "The Photographic Transparency of Various Bodies," both papers treating of the same subject in substance. Stokes, how-

ever, used the fluorescence and Miller the photochemical power of the rays, the former being able to examine much shorter rays than the latter. Other physicists used fluorescence, and it would seem as though photography was insufficient to do the work. This, however, was shown not to be so, as Carnn, in 1879, published an account of what he could do with photographic aid. He used wet plates, but dipped them in distilled water to avoid stains through the long exposure, and so obtained at once photographic results superior to any. Schumann, aware of all these difficulties, and cognizant of the advance in dry-plates, determined to investigate, or "open up to photographic study," the remaining ultra-violet as far as 185.2 mm. (that is as far as Stokes had gone with fluorescent methods) by means of a more suitable process than those hitherto applied, and at the same time to consider the extension of this region of observation as the direction of greater deviation. The report we are giving in brief discusses the former portion of the plan, and also the preliminaries of the second."

CHAUTAUQUA LETTER.

III.

NOT as many people as one usually finds on the grounds at this time of the year are here this season, but nevertheless things are going on smoothly ly and amicably. The grounds, in their much improved condition, look beautiful, and there is a much greater sociability among professors and students, if one were to judge from the many class picnics, teas, or parties held almost every day or night. A remarkable feature this summer is the class in German conducted by Professor Cohn; it is not only the largest numerically in the college, but the professor has the ability or talent to draw towards him the good will of his scholars. The German Club meeting, held in the Hall of Philosophy contributes much toward it.

All other classes are but scantily filled with students, and several of them have not been opened at all. The teachers' retreat, where formerly hundreds have congregated, has not opened its hall, and all special classes are likewise in depressed circumstances. And all that on account of the World's Fair, it is said. Even the lake flies have not come to the city of forest, and probably are at present sojourning on the shores of Lake Michigan. Nevertheless Chautauqua goes on upward and onward.

The opening of the Assembly has brought new life to the grounds, and a few more students to the School of Photography, so that our class is moderately well attended. Our usual routine of instructing has not been interrupted. The class is open eight hours every day with the exception of the afternoon on Saturday.

Lantern slide making and portraiture occupies the greater part of our time, but landscapes and genre pictures, *id est*, photographing on the baseball grounds, of boating, swimming and gymnasium scenes, is by no means neglected.

Very fine work has been done in this line. After overcoming the usual difficulties inherent to amidol developer, it becomes quite popular among the students, and of printing methods, that on Bradfisch paper has not found any rival. As usual we use mainly Carbutt orthochromatic plates, although Wuestner's anti-halation plates have found many advocates.

Whether the school season will be a long or a short one, it is certain very good work has been done, and is done every day.

Among the exhibits of students' work we must additionally mention the excellent Niagara views by G. W. Hart, of Brooklyn. From Massachusetts we have the excellent specimens by "Page," "Miss Newhall" and "F. Umpleby" a student who but a few months ago made his first effort in photography, but whose work makes one suppose him to be an old hand. Miss Reese, of Rhode Island, has most beautiful landscapes of 5 x 8 dimension. There are so many exhibits that it is almost impossible to describe them sufficiently well within the short space THE PHOTOGRAPHIC TIMES can devote to our letters, but there are yet two deserving encomium, those of "Fitzgerald" and "Robinson," of California.

Wm. C. Walker, of Utica, and Mr. Vanderwear, of Brooklyn, amateur photographers not at all connected with the school, have very beautiful platinum prints. The former, genre pictures of a quality in technique and artistic sentiment but rarely seen in public exhibitions, and the other, views of the Yosemite Valley and of Florida of rare beauty.

Of photomechanical work there is a large exhibit of engraving in half-tone by the Electro Light Engraving Co., of New York, and Wm. Kurtz's wonderful heliochromics, reproductions from paintings, and still life taken direct from nature.

These pictures are the sensation of our visitors, and many hours have been spent in explaining how they are made.

We have also Hruza's specimens in lichtdruck printing and color plates by the same author.

In its entirety the exhibition may be said to excel that of 1893.

The advance *Assembly Herald* states our annual meeting to take place on the day after the C. L. S. C. recognition. The programme for our commencement day has been made, but speakers have not yet been selected.

It has been thought prudent to close the session of the school immediately after the meeting has been held.

In my next letter, the last for the season, I will give you a synopsis of what took place at our annual meeting.

Chas. Ehrmann,
Inst. C. S. P.

PHOTOGRAPHING AT THE WORLD'S FAIR.

Perhaps it is a little late to give any advice about photographing at the Fair, but from the results I have seen I think a little is needed.

We have developed over a thousand films exposed there in the last ten days, and with the result that about eight hundred of them were so much over-exposed as to be perfectly useless.

In the first place you have a white building against a sky that photographs white, and in a good many cases water in the foreground to act as a reflector.

Therefore put plenty of speed on your shutter, and if you want really artistic pictures with a good contrast wait till a cloudy day.

I used a 4 x 5 Triad during my stay there, and found that even with the small stop and fastest speed of the shutter my films were over-exposed, and I was obliged to add some rubber bands to quicken the speed.

Louis Clarence Bennett.

THE LATENT IMAGE.

[Read at the World's Congress of Photography by Adelaide Skeel.]

"On Monday, when the fire smokes, on Tuesday when the bills come in, on Wednesday, when the children cry, it is not more smoke, more debt, more tears we want—tell us rather how a poem sprang, how a statue was wrought, how a prayer was conceived," or, better still, tell us how to read the poem, appreciate the statue, pray the prayer. Is it too much to ask this of photography? Am I wrong in thinking the right use of a camera will supply the idealistic in a materialistic age? We may not be able to write the verses, model the clay, conceive the heaven-born thought, but we can all learn to see. To see? Yes! Did you never notice the enthusiasm of the amateur when he first buys an outfit? Are the streets more crowded with interesting picturesque groups than usual? Are the lights and shadows deeper, is the sunshine more dazzling, are the children on roller skates more active, are the beggars more numerous and sketchy?

"How much there is to take," he cries, no more than there was yesterday, but yesterday he had no camera.

It is folly, however, to suggest photographic outfits to those here in our Congress to-day, most of whom have given ample proof of their skill and appreciation of our art. I am sure all of the audience have concealed about their persons or carry openly in sight magazine cameras four by fives, six and a quarters, five by eights and eight by ten boxes, not to mention the *magazines*, the *ferrets*, the *knacks*, the *P. D. Q 's.* and *kodaks.* It would be like addressing the sinners in church when only saints are present, or scolding those who have ventured out with umbrellas for the absent fair-weather Christians at home. Were I to urge this Congress to take pictures—yet having been asked to prepare a paper on photography and expose the same to the white light of publicity I can but advise those who have already begun to study even more seriously. But, how? Once I received back from a magazine an article marked with the editor's blue pencil "Dear Madam," it read, "in camp-meeting they say, 'bretheren be good, be very, very good,' but no further directions concerning the *modus operandi* follow the exhortation. Makers of plates always send printed directions with every package. Please tell us how to be very, very good photographers and oblige Yours truly, ——"

Back of every endeavor there is the hidden purpose, which I call the latent image, the something one wants to say or tell or show. It may be microbes magnified a thousand diameters to show how long or how short a time it takes one to develop the grippe, a falling comet or a genre study of child-life, but whatever the subject-matter, be conscientious in doing it justice. "Half way doins' being of no count whatever in this world or the next," as saith the colored preacher, and I believe him. *Attention*, attention, ATTENTION, that is the whole secret else one dies with all his ideas uninterpreted.

"The stupid public," says the amateur who fails; but I am not so sure it is the public who is stupid.

Perhaps if one looks retrospectively over his photographic career, he may see a neglected finger-post at which he did not turn, hence his idle meanderings from one thing to another and final abandonment of serious endeavor. How do we first meet the photographic idea, or to use again the caption of my screed, how was the latent image of photography developed in our minds?

I was on the sandy island of Nantucket when first I met my fate. Two girls passed me on the blossoming moors which separates the quaint old

town from the quainter village of 'Sconset, and they carried between them a ten dollar outfit. I think it was a novelty to them as it was to me, and certainly their enthusiasm was infectious, for as I watched them stop before every sand mound and broom stalk, saw them pose alternately in attitudes of varied significance, "A farewell to the Mayflower," a "Mary-call-the-cattle-home," "He-cometh-not-she-said," "Evangeline-looking-for-Gabriel," "For-women-must-weep-while-men-must-work-while-the-sea-goes-on-amoaning," and a thousand others, I was charmed beyond words with this new mode of expression. I saw them emerge from under their focusing cloth, radiant and rosy. I know now that they must have made some failures, but in this first glimpse I only envied them their successes. They looked at sky and sea and shore and wrote their memories in light, while I looked but to forget. It was then the reflected sunlight of their happiness stirred the gray matter of my brain, and I cried aloud to my companion :

"I must have a camera."

"You need a new bonnet more," was her answer. My companion was a woman.

I pass over my first mortifying experience with photography and relate instead the maiden effort of my bosom friend. She had a great-great-aunt. She has her still. Great-great-aunty had not been taken since the days of Daguerre, and her enthusiasm was almost as wild as her niece's. Seated by a table, knitting in hand, pussy purring at her feet, an open Bible in her lap. sharp focus taken on a page of *begats*, the exposure of a half second was made with the developed result of only a cap border instead of the expected *Meyer-von-Bremen* picture. It was a disappointment, but the artist excuses her failure by saying an over-exposed relative cannot be brought up in a modern hurry. Great-great-aunty, it is rumored has taken her small, small niece's name out of her will.

After the early successes which we all know are worse than failures if thereby we win prizes rather the know-how and the know-why of experience we advance to the *sturm und drang* period of our career. The image is no longer latent, but coming up. We have a plenty to say and should be learning to say it. At least we are learning what cannot be said through this medium. Fiery odeals are past, the baby has not been poisoned, friends tried and true have been photographed into enemies, enemies dire and deadly into friends,—we have established a right to the family bath-room and best towels, the drain is stopped by frilling films, but no one dares mention it to us. *We are workers.* Father, mother, sister, brother, lover, husband, wife and cousin fear us and justly. We have filled albums, we could have filled barns,—is that all? No, there remains the repose which lies on every height.

"I grew tired of my successes," said one young lady amateur to me. She had truly done well, and she had the perception to know it when she compared her prints with other amateur work in her little village, but I wondered how her efforts compared with those of even her despised local photographers. Have you not heard of those amateurs whose plates professionals envied? Have you not met the boy with the two-dollar outfit who took such shots that his own mother was sorry for the same views for sale? of the girl whose interiors the man in the —— firm just spoiled because he could not do half so well? Don't you personally know the fellow whose lantern-slides so far excelled most folks that he took nobody's advice? We have not heard from him lately. I believe his "luck" left him and he has given away his box. It all comes to one and the same thing. We must not compare ourselves with our inferiors, but must come out into open competition and see what the world is doing.

"My pictures give away so nicely," laughed an enthusiast to me the other morning; "they sell, too, at fairs, and are complimented by fond friends when I send them as Easter and Christmas cards, but in the shops they are dead stock. Isn't it funny?"

Yes, it is funny if you do not want the money, and it is funny if you do not want the fame; it is funny if you are satisfied with an arrested development. Heaven save the buyers should I advise all amateurs to rush into market. And yet—and yet—I always rejoice when I see an amateur outgrowing his limitations.

"Perhaps you have heard that I have suffered the keenest distress of mind from Henry's having taken to a pursuit which—well, a very respectable pursuit, I dare say, and some artists, as artists, are quite superior persons; still, we never yet in our family have gone beyond an amateur, and it is a reasonable weakness to feel a little——" Mrs. Gowan broke off with a sob, and Clennam, however resolute to be magnanimous, could not keep down the thought that there was mighty little danger of the family ever going beyond an amateur.

Amateurs, all, let us have no fear of taking a step down when we step ahead and develop into professionals, for whether we work for fun or fame, for money or for nothing, we can yet do all *con amore.* The idea without the execution is of little value, but even worse is the execution without the idea. We have our image latent; the silver grains are already stirred; "not matter, but mind," brings up the picture.

FILM IN RELATION TO AMATEUR PHOTOGRAPHY.

[Read at the World's Congress of Photography by G. D. Milburn.]

THE subject of celluloid film is of considerable interest to a great number of photographers. The two chief points to be considered are :

First. The reason for substituting celluloid film for glass as a support for sensitive bromide of silver emulsion.

Second. Its practicability, and in what form.

The first can be answered very quickly, namely: the main object is to overcome bulk and weight. The question then arises : Is this greatly to be desired ? Yes, to the tourist pursuing photography as a pleasure, as well as the out-door photographer, a light, compact outfit is a great desideratum. For instance, go back to the old wet plate days and compare that outfit with one of the present day, and note the greater opportunities of the latter.

The second point is more open to discussion, especially considering that manufacturers of the rolled celluloid film have made complete failures of producing the commercial article. But perhaps



Photo-chromo Engraving Co. By Alfred Steiglitz.

"PEACE."

before we go any further it is as well to explain the difference between rolled celluloid film and cut-sheet film. It should be understood that the former is made by spreading celluloid in a plastic or semi-fluid state on a long table made of several plate glass slabs and allowing it to dry, while the latter is sliced by machinery from a solid block of celluloid. Cut-sheet film, when properly manufactured, is allowed to get well seasoned (several months' seasoning) before it is coated with the bromide of silver emulsion, thereby partially insuring the sensitive emulsion from coming in contact with the harmful volatile parts of the celluloid. On the other hand, the rollable film, from necessity, is coated with the bromide of silver emulsion within ten or twelve hours after the celluloid is first spread on the glass table. To this, in some extent, is due the rapid deterioration of the bromide silver emulsion. It also accounts for the edges of a rolled film drying, leaving the centre full and baggy, and in practice making a sharp picture one of the impossibilities. Rollable film is usually coated with a sensitive emulsion before the celluloid is stripped from the table, which makes the stripping a very delicate operation—its adhesiveness causing endless trouble with electricity, producing in the negative fine branch-like markings.

It will be remembered that I have mentioned the table upon which the celluloid is spread as being long. Several glass plates are joined to make the whole. To a casual observer it would seem as if the glass plates could be so well joined that the joints would not materially show in the film, but, alas, not so! contraction and expansion play an important part and will not permit it; the result is that the semi-fluid celluloid enters the joints and very annoyingly appears in the finished negatives, giving the impression of the celluloid having been crudely joined. This nuisance, as if not satisfied, goes still further and often imprints itself on several of the adjacent layers of film in the roll.

But the most serious defect with the rolled film will be found in its sensitive surface contracting when first spooled. It is a well known fact that in rolling or bending any substance the inner side contracts and the outer side expands, the particles striving to re-arrange themselves to the new existing conditions.

So with the rolled film, which is necessarily spooled when fresh, a condition where the gelatine and silver particles are to a greater degree susceptible and ready to conform to the new condition brought about by rolling under tension. The particles soon become set, and although the film is unwound for the exposure, long enough time is not allowed before exposure for the particles to again re-arrange; therefore the exposure is made when the gelatine and silver particles are in a contracted state. In development, the gelatine particles swell and assume about the same relation as when the emulsion was first spread upon the celluloid. Coarse, grainy and foggy negatives must be the result, and to this rough treatment of an extremely sensitive substance must be attributed a generous share of the rollable film failures.

Cut-sheet celluloid film, as before stated, is well seasoned before being coated with emulsion and is transparent and practically lies flat. Then what have we to contend with in manufacturing a reliable practical cut-sheet film having all the desirable qualities of a glass plate, and still embodying the two chief qualities, *i. e.*, lightness and compactness? This, and nothing more; make the celluloid after seasoning inert and inactive to the bromide of silver emulsion and devise practical mechanical instruments in which to use it.

I believe this will be accomplished soon, and when it is, glass plates will be a back number for outdoor photography.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 433.)

PART II

The Manipulation of the Paper.

Chapter VI.

Combined Toning and Fixing.

The method of toning and fixing in one operation is now meeting with considerable favor with workers of this paper. That it is simpler is certain. The prints are removed from the printing frame and immersed directly into the combined bath, thus saving many operations. At first it was considered that prints toned and fixed in this manner were not likely to be permanent. The preponderance of evidence, however, goes to show that such is not the case unless complicated by the use of less stable salts than even hyposulphite of soda. For this reason we do not recommend the combined toning and fixing baths containing lead if permanent prints are desired. Otherwise they give nice results and much admired tones.

Only recently we were shown by Professor Ehrman some prints that gentleman had made and toned with a combined toning and fixing bath so

far back as the year 1852. These prints have been hanging up in the light and are still perfect, with rich chocolate-brown tones.

A simple formula is that ascribed to Mr. W. K. Burton, which, however, was used long before his time, but bears the stamp of his recommendation; and the addition of nitrate of lead is due to Mr. I. Chester Jarvis, this being suggested as a remedy against a yellowing of the whites, which might otherwise take place :

Chloride of gold	6 grains
Nitrate of lead	3 grains
Sodium hyposulphite	3 ounces
Distilled water	20 ounces

This bath is always ready for use. It will keep well and can easily be strengthened by the addition of more gold and may be used for some considerable time, although it is advisable not to use the bath too long, or the prints will not be properly fixed.

Liesegang strongly recommends the following bath for his brand of paper, and it will be found a good working formula for all varieties of commercial or home-made papers :

Solution 1.

Water	12 ounces
Sodium hyposulphite	6 ounces
Alum	2 drachms
Ammonium sulphocyanide	1 drachm
Common salt	4 drachms

This solution should be allowed to stand in the open air for about seven days, then filtered and used as directed below :

Solution 2.

Water	3 ounces
Chloride of gold	15 grains

When required for use, add seven parts of No. 2 to sixty parts of No. 1, and about forty parts of old used combined toning and fixing bath. This, of course, is not at first attainable, and the bottle should then be filled with old scraps and trimmings of the paper, untoned spoilt prints, etc., or some chloride of silver may be added, as suggested below.

Another favorite formula is the following :

Solution 1.

Hyposulphite of soda	6 ounces
Ammonium sulphocyanide	1 ounce
Sodium acetate	1½ ounces
Saturated solution of alum	2 ounces
Distilled water	24 ounces

Fill the bottle containing this solution with scraps of paper, etc., or add to it the following mixture :

Solution 2.

Silver nitrate	30 grains
Sodium chloride	30 grains
Distilled water	½ ounce

After the lapse of twenty-four hours the solution is filtered and the following added to it :

Solution 3.

Chloride of gold	15 grains
Chloride of ammonium	30 grains
Distilled water	6 ounces

A formula principally recommended by English gelatino-chloride manufacturers contains :

No. 1 Solution.

Hyposulphate of soda	20 ounces
Alum (potash)	5 ounces
Sodium sulphate (not sulphite)	14 ounces
Water to	1 gallon

Dissolve the hypo and alum each in about one quart of hot water, mix, and then add sodium sulphate already dissolved, making up to one gallon with remainder of water. This mixture should then be left for some hours for the precipitate to settle, when the clear solution may be poured off or filtered and is then ready for use. It will keep indefinitely.

No. 2 Solution.

Gold chloride	15 grains
Acetate of lead	64 grains
Water (distilled)	8 ounces

Dissolve the acetate of lead in the water and add the gold. A heavy precipitate forms in this solution, which should be shaken up when any is to be poured out; it redissolves when added to No. 1 stock solution. For use, mix 8 ounces of No. 1 with 1 ounce of No. 2. With this bath the plates should be rather more fully printed than when separately toned. They should not be washed before toning.

Prof. Chas. Ehrmann has compounded a bath that answers all requirements. His instructions are,* " Dissolve 1 pound of hypo in 32 ounces of water and 3 ounces of alum in 32 ounces of water. Allow to settle, heat to 120 degs. filter and add 22 grains of nitrate of lead. To 20 ounces of this solution, add 5 grains terchloride of gold dissolved in 2 ounces of water. With 20 ounces of this solution, fifty 5x8 pieces of emulsion paper or an equivalent number of larger or smaller dimensions can be toned and fixed to perfection. After toning this number of prints the gold is exhausted, and the bath should not be used any longer. A well printed-out picture tones in from twelve to fifteen minutes, sufficiently long to secure a thoroughly fixed print. When the tone of the

* The Photographic Times, Sept. 2d, 1892.

picture begins to look purplish by transmitted light no matter how the color may be by reflected, remove it at once to running water. There is alum enough in the solution to harden the film without resorting to an extra tanner, and carbonate of soda before or after fixing is not at all necessary. The finished prints have a beautiful deep purple color and the whites are perfectly clear.

Other combined baths are :

Tylar's.

Chloride of gold	6 grains
Tungstate of soda	60 grains
Ammonium sulphocyanide	100 grains
Hyposulphite of soda	960 grains
Distilled water to make	8 ounces

Dissolve the salts in half the water made hot, and make the solution measure 8 ounces by adding more water, then add the gold. The tungstate of soda in this bath may be replaced by phosphate or acetate with equally good results, and slight variation in tone.

E. R. Liesegang's Formula.

Solution 1.

Hyposulphite of soda	200 grammes
Alum	80 grammes
Nitrate of lead (powdered)	2 grammes
Boiling water	400 c.cm

The solution is allowed to stand for two days, then 400 c.cm of boiling water is added and the solution filtered.

Solution 2.

Ammonium sulphocyanide	160 grammes
Distilled water	1250 c.cm.

Solution No. 1 is added to solution No. 2, and then 10 to 20 c.cm. of a 1 per cent. solution of chloride of gold are added.

Herr Wolf writing in *Der Amateur Photograph* recommends the following as a bath that tones well and quickly, it being only necessary to filter it from time to time.

Water	1000 c.cm
Sodium hyposulphite	250 grammes
Ammonium sulphocyanide	27 grammes
Lead acetate	10 grammes
Lead nitrate	10 grammes
Citric acid	7.5 to 10 grammes
Water	200 c.cm

To which is added 1 gramme of gold chloride.

It will be necessary to say a few words about the method of mixing, using and keeping these baths. In mixing it is advisable to dissolve all the salts in water, and after the solution has stood for the required time it should be filtered, and the chloride of gold should be dissolved in water neutralized by the addition of a little chalk and then filtered or decantered, and added to the other salts. All the combined toning and fixing baths either refuse to tone at all or only tone slowly unless they are saturated with chloride of silver. The usual method recommended is to fill the bottles with scraps of untoned paper, etc., but it is far preferable to add a definite quantity of chloride of silver formed by a mixture of nitrate of silver and a soluble chloride, as indicated above. When a bath has been used some time, a black precipitate (sulphide of silver) is thrown down. This will not effect the toning and may if desired be filtered out.

An important question is—How long can a bath of this description be used? A moment's consideration will show us that this is not dependent upon the amount of gold in the bath, but upon the saturation of the hyposulphite with silver salt, as its powers in this respect are not limited. The best practical test for the age of a bath or its suitability for use, is to note whether the half tones tend to a greenish hue or not. If there is the slightest sign of this, the bath should be at once rejected and either placed among the residues, or preferably used for mixing with a new bath so as to saturate it with chloride of silver.

Many make the mistake of adding more gold to the combined bath and forgetting the hypo. The prints naturally tone, but are not fixed, and this fact will make itself apparent before many days. E. J. Wall points out that the presence of alum in a toning bath introduces an element of decomposition and possible chance of sulphur toning, one of the surest methods of producing yellow and fading prints. When alum and hypo are mixed a decomposition occurs, which is represented by the equation :

$$3Na_2S_2O_3 + Al_23SO_4 = Al_2O_3 + 3S_3 + SO_2 + 3Na_2SO_4$$

From which it will be seen that oxide of aluminium and sulphur are deposited and sulphurous acid set free. It is to allow of this reaction in the toning baths that we are told to allow the stock solutions to stand for so many hours before adding the gold. Now all photographers are aware that nascent sulphur and free sulphurous acid are generally considered to be the most useful agents for producing yellow whites and fading prints. The addition of alum to a toning bath is considered necessary for two reasons—first, to counteract the solvent effect of the sulphocyanide upon the gelatine film, and secondly to make the bath work more even and regular. The objections to it are —first, decomposition of the hyposulphite, with the setting free of sulphur and sulphurous acid; secondly, a possibility of yellow whites; and thirdly, a shortening of the life of the bath.

Walter E. Woodbury.

(*To be continued.*)

LATITUDE IN EXPOSURE AND SPEED OF PLATES.

By F. Hurter, Ph.D., and V. C. Driffield.

It is generally assumed, because our researches have led us to pronounce exposure, and not development, to be the determining factor in photography, that therefore the production of similar prints from a series of negatives which have received widely varying exposures, and have been submitted to widely different treatment in development, totally upsets the whole of our conclusions.

Our attention has been called, from time to time, to such series of negatives; and in all the instances which have come to our notice, there has been no difficulty whatever in arranging the negatives in the order of their exposures; nor has it been much more difficult, by mere inspection, to so arrange the prints. If, however, such negatives be measured, and their density ratios ascertained, the order of the negatives, with respect to duration of exposure, is readily decided beyond all possibility of error.

As an instance of such a series of negatives, we give our measurements of four plates sent to us, two years ago, by a gentleman in Ireland, as an illustration of the latitude in exposure obtained by appropriate treatment during the operation of development. The subject was the same in all four plates, and consisted of a field bordered by trees. In the middle distance was a gray house, one side of which was illuminated by the diffuse light of the sky, and the other side by the sun. We measured the densities of the sky, the two sides of the house, the most transparent shadows in the trees, and the spot in the grass. In order to ensure the measurement of precisely the same spots in all four plates, masks with circular openings were fixed on each negative, so that the circles coincided when the subjects coincided. The four plates respectively received exposures of 1, 10, 30 and 60 seconds, and the resulting negatives yielded prints differing so little in quality, that that they were deemed to have completely demolished our contentions. The following table gives the results of the measurements :—

Densities.

Exposures.	1″	10″	30″	60″
Darkest shadow in trees	.378	.553	.973	1.028
House (shadow side)	.833	.750	1.371	1.315
Grass	.930	1.005	1.706	1.581
House (sunlit side)	1.721	1.571	2.121	1.921
Sky	2.598	2.236	2.578	2.308

A glance at the densities of these negatives, particularly those indicating the extreme range (darkest shadow and sky), shows how widely they differ from each other; whilst a glance at the negatives themselves surprises one by revealing the inability of the eye to readily appreciate these differences. The eye is still less capable of appreciating the great alteration in the density ratios given in the next table.

Density Ratios.

Exposures.	1″	10″	30″	60″
Darkest shadow in trees	1	1	1	1
House (shadow side)	2.2	1.35	1.40	1.28
Grass	2.46	1.81	1.75	1.53
House (sunlit side)	4.55	2.84	2.17	1.86
Sky	6.87	4.04	2.65	.24

These ratios decrease with increased exposure in perfect accordance with all our experiments. The negatives are very different indeed in this respect, and fully bear out our contention that the density ratios are a function of the exposure, and not of modifications in development. We have no hesitation in asserting that such negatives may always be arranged in the order of their exposures by any one acquainted with the subject. In printing quality, as regards time, these negatives also differ considerably.

It is clear, therefore, that these negatives do not illustrate in a very striking manner what they were intended to illustrate, namely, the great latitude in exposure. They do, however, illustrate another point, namely, the great latitude there is in the quality of prints acceptable to the eye, and the curious inability of the eye to judge numerical values of density differences. In this faulty perceptive power of the generality of eyes lies a great deal of the latitude of exposure.

Various authorities give wholly different limits for this latitude in exposures. Professor Burton has given it a 1:30, but states that he has succeeded with some plates with exposures ranging from 1:80. We, ourselves, stated in our original paper that the plates which we used in our experiments (Nos. 21 and 22) would have given good pictures of subjects with contrasts varying from 1:80, though the exposures had varied from 1:2; that is, the plates were capable of recording, *truly*, contrasts ranging from 1:160.

Latitude in exposure depends

1. Upon the quality of the plate.
2. Upon the range of contrasts in the subject.
3. Upon the degree of truth with which the contrasts are to be presented in the positive print.

The quality of the plate is the most important question. There are some plates which have no latitude of exposure at all, or which are, at any rate, incapable of rendering any range of contrasts in this subject with any degree of truth, whatever exposure may be given. There are other plates capable of recording, *truthfully*, a comparatively wide range of contrasts, though exposures may vary from 1:5, or 1:6, and, if truthfulness of the intermediate tones be not absolutely demanded, such plates are capable of yielding useful negatives within such ranges as 1:20 or 1:30.

These different qualities of photographic plates are best represented graphically by the curve which we have termed the "characteristic curve" of the plate. The method of obtaining this curve will be presently described. Diagram No. 1 presents two characteristic curves of two well-known brands of plates which we will call A and B. We at once perceive a characteristic difference between these two plates. While the curve belonging to plate A is nearly straight from exposure 0.625 cms. to exposure 80 cms., plate B yields a curve which has hardly any straight part in it. Now, we have shown that if a plate must truly represent the contrasts of the subject, it can only do so if it possesses a perfectly straight portion within its characteristic curve. The longer this straight part is, the greater is the latitude of exposure for that plate.

Plate A would represent a subject with contrasts varying from 1:20 with a high degree of truth, though the exposures varied from 0.625:4, or from 1:6. If several exposures were made upon several plates, the exposures ranging from 1:6, they would yield negatives of very different appearance, giving, however, identical prints, though the negatives were all simultaneously developed

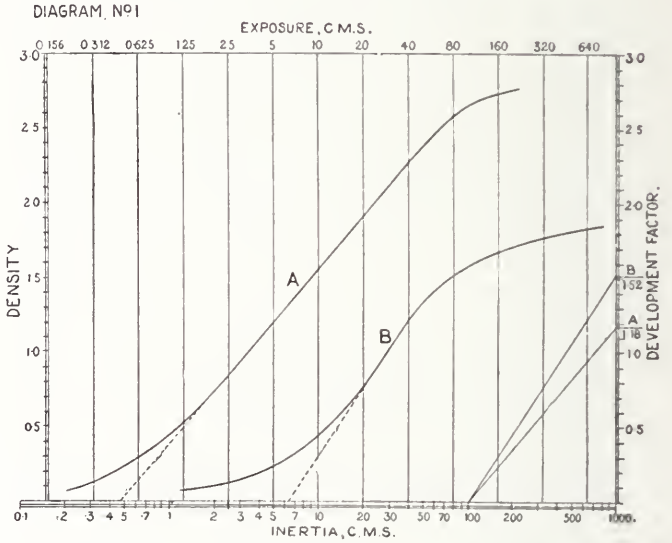
in the same dish for the same length of time. But, though all these negatives yielded identical prints, the professional photographer would discard them all but one, which to him, at all events, would be the only really good negative. *There is one exposure, and only one, which yields a true representation with minimum density.*

Plate B, on the other hand, would never give a correct representation of any subject. Such plates could not be sold or used if the eye were capable of readily detecting photographic untruth in prints. It is owing to this defect that such a plate can be used at all. But the unsatisfactory nature of the plate, as revealed by the characteristic curves, makes itself evident in practice by the very limited range of exposures which will yield satisfactory negatives. With such plates Professor Burton would have tried his art of altering density ratios in vain.

Next in importance to the quality of the plate is the question of range of light intensities which have to be recorded truly. Plate A is capable of representing light intensities lying between 1 and 70. If intensities had to be photographed embracing a greater limit than 1 : 70, it could only be done by sacrificing truth or proportionality to truth altogether. In the case of plate B, the limit would lie between 1 and 2. The question arises, What are the usual variations in light intensities which have to be considered in photographic practice? Many photographers appear to have highly exaggerated ideas upon this subject. We do not exactly know what Professor Burton's opinion is, but it would appear, from his remarks, that the power of altering density ratios, by variations in the developers, can only be exercised in the case of plates which have received light intensities varying from one to, at least, several hundred. From this we are led to assume that he supposed that the two prints he has recently published represent light intensities varying from one to, at least, several hundred.

Now, it is an easy matter to ascertain the limits of light intensities which have to be dealt with in any given subject; and the following is the outline of the method we adopt in such an investigation. We cut a plate into two parts; upon one part we make a series of exposures to the standard candles, so as to determine the characteristic curve. The other part of the plate is exposed in the camera to the object of which it is desired to ascertain the range of light intensities. We give such an exposure as will produce a correct negative, but it is not necessary to hit this very accurately. The two parts of the the plate are then developed together for the same length of time, and with the same developer; and the highest and lowest densities of the negative, and such others as are of interest, are measured; as are also the densities resulting from the candle exposures. It will be evident that this graded plate, produced by exposure to the candle, serves as the scale wherewith to measure the light intensities actually at work in the camera, and which produced the densities of the negative. For such experiments it is, of course, desirable to select subjects which present sufficient areas of uniform density in the negative. A useful subject, because it comprises the entire range of tone, which a paper print admits of rendering truly, is an ordinary folding screen, upon each of two folds of which are fixed a sheet of white cardboard, and a sheet of mat black paper. The screen is so placed that one fold is illuminated by direct sunlight, and the other by the diffuse light of the sky; and so that the sky itself is included in the picture. This subject gives us five densities on the resulting negative, namely:—

Sky.
White, illuminated by the sun.
White, " " diffuse light.
Black, " " the sun.
Black, " " diffuse light.



The following are the details of such an experiment, and diagram No. 2 illustrates graphically the method of ascertaining the equivalent of the light intensities in candle-meter seconds. A plate was cut into four parts; three of them were exposed in the camera to a subject as just described, and the fourth was exposed ro the standard candle, the exposures ranging from 0·312 cms. to 160 cms. The three exposures given in the camera were 0·8, 4 and 24 seconds respectively, and all four plates were developed together in one dish for the same length of time. The densities of the negatives and of the graded plate were found to be—

Densities of Negatives.

Exposure.	0.8″	4″	24″
Sky	0.940	1.695	2.260
White in sunlight	0.940	1.735	2.280
White in shade	0.620	1.360	2.080
Black in sunlight	0.120	0.530	1.290
Black in shade	0.060	0.320	1.025

Densities of Graded Plate.

Exposure. cms.	Density.	Exposure. cms.	Destiny.
0.312	0.150	10	1.360
0.625	0.275	20	1.665
1.25	0.440	40	1.935
2.5	0.700	80	2.160
5.0	1.040	160	2.295

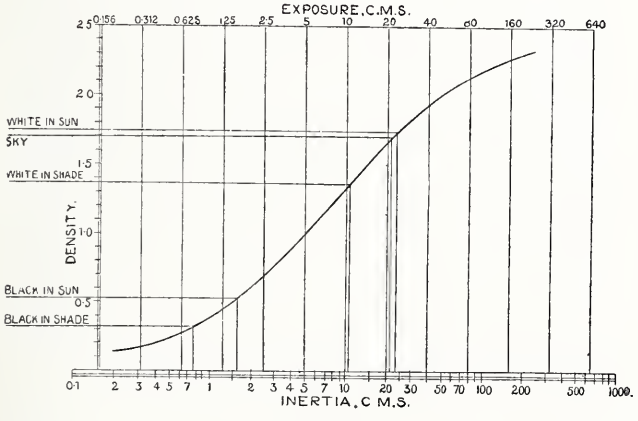
The densities of the gradations obtained by these ten exposures were plotted as a curve, the logarithms of the exposures as abscissæ, and the densities as ordinates. Parallels corresponding to the densities of the three negatives were then drawn, and where they intersect the characteristic curve perpendiculars were drawn through the points of intersection. These perpendiculars indicate at once the equivalent exposures in centimeteres which produced the corresponding densities. In diagram No. 2

the densities of the negative which recived an exposure of four seconds are thus plotted, and it will be seen that the respective equivalent exposures are—

Negative, 4 secs. exposure.	Sky	20.80 cms
	White in sun	22.50 "
	" shade	10.10 "
	Black in sun	1.62 "
	" shade	0.77 "

It will thus be seen that the whole range of light intensities, from mat black in the shade to the sky or white cardboard illuminated by the sun, is as 0·77 : 22·5 or as 1 : 29. Similar results were obtained with the other two negatives, and the following table gives their equivalents, the highest light being put = 30.

DIAGRAM Nº2.



Relative intensities of light emitted by	As shown by negatives exposed 0.8"	4"	24"	Mean.
Sky	30	27.7	29	28.9
White in sun	30	30	30	30
" shade	15	13.6	13.0	13.8
Black in sun	1.83	2.1	1.78	1.90
" shade	1.16	1.02	1.01	1.06

We learn from this experiment that an object illuminated by direct sunlight is about twice as bright as the same object in the shade; and that the whole range between a mat-black object in the shade and a brilliantly illuminated sky is about as 1 : 30. It will also be seen that the exposures given in the camera vary as 1 : 30, and yet the same relation as to light intensities is revealed by the shortest as by the longest exposure.

If we now examine Professor Burton's statements in the light of this (to him) evidently new knowledge, we have to point out that, according to his own confession, he cannot alter density ratios between limits of exposures 1 : 10; and he would not, we presume, undertake to seriously alter density ratios between such narrow limits as 1 : 30, since he says that "it is necessary to have ranges of exposures of at least several hundreds to one to be able readily to vary the density ratios."

Now, assuming certain conditions, *actually never present in photographic practice*, it seems, according to Professor Burton, true that it is possible to vary density ratios when the exposures vary between at least several hundred to one. Such variations do not occur in ordinary subjects; the light intensities vary between limits of 30 : 1 at most. Professor Burton's faculty of producing negatives which yield similar prints is not due to his mode of development; it lies wholly in the latitude of the plate, and in the narrowness of the range of light intensities in his subject. He could have obtained identically the same result, and possibly a better, by means of *one* developer, and by simply varying the time of development for the shortest exposures.

Two negatives are alike in their printing quality when the density differences are alike throughout, whatever the density ratios may be. Two negatives may have totally different density ratios, and yet be equally true to nature, and yield identical prints, whatever printing process may be employed, so long as it is the same in both cases. Thus, so long as the light intensities of a given subject lie within a certain limited range, and the time of exposure is such that the densities produced fall within the straight part of the characteristic curve, so long will the density differences for the same subject be independent of exposure and alike.

Suppose the length of the straight part of the curve cover a range of exposure 1 : E ; and the light intensities to be photographed lie between the limits 1 : I, the latitude of the exposure would then be $1 : \frac{E}{I}$; and within these two limits any exposure would produce negatives which, developed in the same developer for the same length of time, would yield negatives giving identical prints. Take the case of plate A : The straight part of its characteristic curve may be taken as extending from exposure 1 cms. to exposure 80 cms., *i. e.*, 1 : 80. If a subject had to be photographed which was illuminated by diffuse light only, and in which the light intensities varied from mat black to white, or even more, say a range of 1 : 20, the plate would yield negatives with exposures varying from 1 : 4 almost identical in printing quality, though they were all developed together. If a little deviation from truth is permissible, and the portion of the characteristic curve lying between exposures 0.312 cms. and 160 cms. (a range of 1 : 512) be considered as sufficiently accurate, the same subject would permit a latitude of exposure of $\frac{512}{20} = 25$, and there would still be very little difference in the negatives, particularly if development be prolonged in this case of the shorter exposures. For a sunlit landscape the latitude would be $\frac{512}{30} = 17$.

(To be continued.)

Correspondence.

A PROTEST FROM AN OLD N. P. A.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I have read your editorial on the Chicago Convention with interest, and I may say that I think you have done it more than justice in your very fair report of that Convention; for, as a matter of fact, all of us who attended it know that it was a miserable failure in every sense of the word. I cannot understand why it is that you and the other photographic journals continue to give the P. A. of A. any support. It should be denounced by all and put an end to, for it really serves no useful purpose whatever.

I well remember the Conventions of the good old N. P. A. at which we were given *instruction*. There were papers read and discussions entered into which *taught* photographers

something ; there were instructive demonstrations and exhibitions given, and the management was conducted in a way to avoid the criticisms which are so often heard in regard to the present national association.

Very truly yours,

An Old N. P. A.

BUFFALO, N. Y., August 5th, 1893.

AN INVITATION.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: In addressing a few words of greeting from British to American workers at the P. A. of A. Convention, I stated that there was a movement on foot in the Photographic Convention of the United Kingdom to make all members of the American Convention honorary members of the British one, and to write all Americans traveling in England during the summer to take part in the British Convention. A motion to this effect had been laid before our Plymouth meeting, by myself. I expected official notification of the result before the close of the P. A. of A. meeting and intended to suggest that a reciprocal motion should be made. The notification did not come till too late, so I wish to communicate it through you, giving the particulars from a press report:

"Mr. Cembrano brought forward a letter which he had received from Mr. Snowden Ward, suggesting that a rule should be made whereby members of foreign conventions should, when in England at Convention time, be made honorary members of the Convention. This being approved, was proposed by Mr. E. J. Wall and seconded by Mr. Cembrano. Carried unanimously."

May I take this opportunity of thanking the American Convention and many of its individual members for their kindness to our British visitors. One of our members who left home with many insular prejudices writes of his trip as "the most enjoyable experience of my life," and adds: "I can never forget America or the Americans." I think he may speak for us all.

Yours faithfully,

H. Snowden Ward.

Notes and News.

T. H. Blair, Vice-President of the Blair Camera Co., sailed for London, England, on the "Campania," Saturday, Aug. 5th.

Mr. Blair goes to England to look after the interests of his London house.

"Artists and engravers are fond of crying out against photography and the way it is used by unscrupulous persons to copy engravings," writes the *Photographic News*. "Of course, the practice cannot be defended, but, when so much indignation is poured over the photographic pirate, might it not be well if a little were spared for the artist who produces spurious pictures, which are afterwards sold as genuine works by well-known men? The extent to which this trade in forgeries is carried may be gathered from the statement of a well-known artist, who recently said that, out of some two hundred and thirty pictures submitted to him, only twenty-one were genuine. Yet we rarely hear of any one being prosecuted. The last case was, we believe, that of a forgery of one of Mr. B. W. Leader's pictures. Mr. Leader's style, it appears, is easily caught by an imitator, and hence he is a favorite victim. The United States, it may be mentioned, is the chief market for these wares, and the number of supposed 'original' works by living men hanging on the walls of American millionaires must be enormous."

Amidophenols.—In *Comptes Rendus* Messrs. Lumière & Seyewitz describe a new method of obtaining pure amidophenols. This has always been a difficult operation on account of the readiness with which these compounds absorb oxygen from the air, but by decomposing their salts with neutral sodium sulphite, a body with feebly alkaline reaction, which prevents oxidation by its reducing properties, several amidophenols have been obtained in a pure state by the authors. The reaction is only available, however, so long as the amidophenol formed is slightly soluble in the aqueous solution of sodium sulphite, and possesses a basicity so weak that it cannot combine with the sulphurous acid formed. Otherwise it is the sulphite of the base that is formed, and this with the greater facility in proportion as it is less soluble in the solution of sodium sulphite. The reaction has been studied by the authors on the salts of paramidophenol, diamidophenol, and triamidophenol, and their salts are given at length. In the case of triamidophenol the base itself was not liberated, but the sulphite formed, when its chlorhydrate was acted upon by sodium sulphite, probably on account of the more energetic nature of this base as compared with the other two amidophenols.

Contretypes or Positives Direct in the Camera.—The plate is exposed in the camera and developed as usual, care being exercised, however, that it is not fogged. It should be then well washed till quite free from the developer. The following solutions are required:

A.

Saturated solution of chrome alum.

B.

Boric acid	1.5 parts
Water	500 "

C.

Solution A	20 "
" B	10 "
Water	1000 "

D.

Potassium bichromate	25 "
Nitric acid	10 "
Solution A	25 "
Water	1000 "

E.

Potassium hydrate	2 "
" bromide	2 "
Water	1000 "

Place the developed and well-washed negative in solution D till the black image is quite converted into a red one; then wash well in three successive baths of solution C and soak in solution E till the red image disappears, and thoroughly wash. Expose the plate to diffused light for about 30 seconds, or to lamp or gaslight for about five to ten minutes, and then develop with a well-restrained eikonogen or paramidophenol developer. The idea is not new, but may be useful.—SIGNOR CORSI *in Bull. del Soc. fot. Ital.*

A Wrinkle to Husbands.—The young wife of an engineer residing near the Tiergarten had gone to spend the Easter holidays with her mother in Magdeburg, and appeared so well satisfied with the change that she prolonged her stay, notwithstanding the pathetic appeals of her lonesome husband. At last our involuntary grass widower devised an original plan for inducing his little wife to return to her hearth and home. He got a friend of his who kept a camera to take a photo. of his house and send it to his wife, with a letter stating that her intense longing for home would no doubt be somewhat mitigated when she saw that the old place remained as she had left it, and that she could now stay with her mamma as long as she liked. Tne very next train brought my lady unannounced, greatly excited, and accompanied by her mother. Whence this sudden apparition? The photo. in question represented our engineer standing in front of the house and engaged in a lively conversation with the young lady next door, whose laughing features were distinctly portrayed in the picture. Explanations followed, to the effect that the whole affair was a joke, but madam did not quite see it, and stayed at home instead of going back to Magdeburg with her mamma.—*Berliner Tagsblatt.*

The Editorial Table.

Map of the Adirondack Wilderness.—By S. R. Stoddard, Glens Falls, N. Y. Sixteenth revised edition, 1893; size, 25 x 31 inches; scale, four miles to an inch; colored by counties. On map-bond paper, in cloth cover, about 4 x 6 inches for convenience in carrying in the pocket. Price, $1. New features. It shows the Adirondack State Park in an overtint; lines of private preserves in the wilderness; sections of new railroads in operation in 1893; new roads and trails, etc.

Facts about Aristotype Paper.—In this little pamphlet the New York Aristotype Co. describe the virtues of their Kalona (collodion) and Gelatine papers. This firm is, we believe, the only manufacturers of both papers, and certainly the quality is all that can be desired. We have already written a great deal upon their merits and advantages over the older fashioned methods of silver printing.

The "New Adirondacks."—By S. R. Stoddard, Glens Falls, N.Y., 1893. Diamond (23d) edition, 292 pages, cloth, 50 cents; paper, 25 cents. Published by the author. Rewritten from title to finis. Matter condensed from old book. Lacks the familiar "narrative" on which the incidents of the trip were made twenty years ago and the changes of succeeding years were hung annually in passing editions. Copiously illustrated, contains seventy new cuts, many of them full page, in addition to old ones. It has forty maps of various sections with information as to ways of reaching the various gateways, and lines reaching from gateways to central points.

The book is reduced in size from the old measure, making it more convenient for carrying in the pocket. Printed in clean, readable type. It contains a chapter on trout fishing, flies, suggestions, etc., by A. N. Cheeney of "Shooting and Fishing"; tells where various kinds of fish can be found, gives the game laws, suggestions as to camp and outfit, guides, etc. Forestry and the State Park is considered at length in a chapter by Colonel Wm. F. Fox, Superintendent of State Forests, and in the "greeting" the author reiterates his old-time warning against the cutting of the forests from the higher Adirondacks, and recommends that a law be enacted prohibiting the cutting of evergreen trees on any Adirondack lands more than 1800 feet above tide by any person without regard to the ownership of the land, and then only with the approval of competent authority under the State.

The Nelson-Dallinger Improved Microscope Lamp.—This lamp has been reconstructed by James Swift & Son, 81 Tottenham Court Road, London, W., England, in accordance with suggestions given by Dr. Dallinger in the revised edition of "Dr. Carpenter on the Microscope," the object being to give a more convenient lamp than formerly at half the original cost. The metal chimney is supported from the top by the bent rod, the base of which is attached to the sliding piece of the vertical square bar so that no heat from the chimney is conducted to the paraffin reservoir, thus keeping this part cool, which can be handled freely after the lamp has been in use several hours. The burner of the lamp when at its lowest is only 2 inches from the table, so that the flame can be used direct on to the object with any microscope. The condenser is the Herschillian form, which can be revolved in the axis of the flame, and it is provided with universal adjustments for working with parallel or convergent light. There is a receptacle for receiving blue or other colored glasses in front of the condensing lens. The burner is made to turn so as to use either the edge or flat of flame. The position of the opening of the chimney can be shifted at the will of the operator. The reservoir contains sufficient paraffin to burn from 12 to 14 hours.

Histological Microscope.—An improved form of the well-known student microscope, constructed by the same firm. The body is furnished with a sliding draw tube, when closed is 160 m.m.: extended 240 m.m., which gives the Continental and English length of body.

The coarse adjustment is effected by means of a spiral rack and pinion movement, which compensates to a great degree the wear and tear of the rack and pinion.

The fine adjustment which moves the entire body is constructed on a new principle, which is self-adjusting. When working the power of a $\frac{1}{12}$ oil immersion there is absolutely no lateral motion.

The stage is much larger and stouter (which prevents flecture) than is usually furnished.

The tube-fitting for under-stage apparatus is fixed on a pivot which allows of the condenser, etc., fitting in it to be turned aside The object for increasing the height of the tripod is to throw the optical centre of the stage up as high as possible, which will be found a great convenience for photo-micrography.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.

2. The camera must be held in the hand during the exposure.

3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.

4. The prints must be mounted but not framed.

5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

Queries and Answers.

109 Some time since I purchased a 5 x 8 Waterbury camera, and made some very satisfactory pictures with same. But this summer I do not seem to be able to do anything whatever with the camera. On attempting to focus a subject I am unable to get a true focus except in centre of ground glass both sides and top and bottom of glass will show nothing but a blur.

109 *Answer.*—Our correspondent when removing the lens from the mount, for cleaning it, has by reinserting placed it in the wrong position. With single achromatic lens the convex side should be turned toward the ground glass of the camera and the slightly concave toward the object to be photographed. We are quite sure this is the proper explanation of the difficulty reported.

110 MAUD L. D.—How can I remove pyro stains from the fingers?

110 *Answer.*—Oxalic or citric acid are generally recommended for the purpose. We find in our own practice diluted hydrochloric acid does quite as well, if not better.

111 M. M. wants to know if the Waterbury A lens works quick enough to make instantaneous exposures, and whether a pair of matched lenses of that kind would do well for stereoscopic work.

111 *Answer.*—The Waterbury A lens, stop *f*/25, a rapid plate, developed with amidol or paraamidophenol, does exceedingly well. The Scovill & Adams Co. have matched Waterbury A lenses, provided with a double Elite shutter for instantaneous and for timed exposures. A pair of lenses and shutter cost but $17.50. We think you would be pleased to work with that instrument.

112 PRINTER has tried to make plain matt surface silver prints according to formula 1, page 64, "The Photographic Instructor," but fails. His prints want brilliancy and color, for they are gray and dull under the best circumstances.

112 *Answer.*—Your silver solution, if otherwise correctly prepared, should be decidedly acid. If the least trace of ammonia prevails, the effects will be as you describe them. The quantity of acid added should be gauged carefully. Too much of it would make a harsh print from the very best and most detailed negative.

113 TYRO.—Can you give me a reliable formula for making red prints?

113 *Answer.*—The most reliable method to make prints of any desired color is by the carbon process. Tissue of almost any color being a commercial article.

We have made recently very pretty red prints with a sort of a kallitype process. Sensitize paper with a solution of citrate of iron and ammonia, hydrometer test 50 to 60, expose under negative and develop with nitrate of silver 1:20, slightly acidulated with citric acid, and fix in pure water. The tone may be beautified to a fine reddish purple with acid gold solution, while neutralized gold produces the ordinary photographic tone.

114 J. SAGE.—I am an amateur photographer. I am not well posted. Will you kindly publish a formula for salting plain paper with arrowroot?

114 *Answer.*—Boil 2 drachms of arrowroot in water, dissolve in it 75 grains of chloride of ammonia, make up to 32 ounces, and filter. In this solution soak plain Rives' or Steinbach's papers for from one to two minutes, and hang up to dry.

Sensitize on nitrate of silver solution 45 grains to the ounce, and slightly acidified with citric acid.

To tone prints made upon such paper requires a very weak gold bath, the ordinary bath used for albumen paper diluted with three or four volumes of water.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Managing Editor.
CHARLES EHRMANN, WALTER E. WOODBURY. } Associate Editors.

SUBSCRIPTION RATES.

Weekly (illustrated) for one year $5 00
" " " six months 2 50
" " three month's trial 1 00

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Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

ADVERTISING RATES.

Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¼ inches.

One page, each insertion $25 00
Half page, per insertion 15 00
Quarter page, per insertion 8 00
Eighth " " " 5 00
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Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

THE AMERICAN ANNUAL OF PHOTOGRAPHY.



THE AMERICAN ANNUAL OF PHOTOGRAPHY
AND PHOTOGRAPHIC TIMES ALMANAC.

READY EVERY YEAR DECEMBER FIRST.

In Paper Covers, - - - per copy, $0 50
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Postage, 15 cents additional.

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Full page [5½ x 9 inches], - - - - - $60 00
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FRESH EVERY DAY.

We beg to announce to the photographic fraternity that we have made arrangements by which we can offer our friends and patrons the following Gelatine and Collodion Aristotype Papers in all sizes,

Fresh Every Day.

Gelatine Papers.

Bradfisch & Pierce.

New York,

Kloro,

Collodion Papers.

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We solicit your orders.

THE SCOVILL & ADAMS COMPANY.

TRY DR. ANDRESEN'S AMIDOL DEVELOPER.

Business Notices.

FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee, Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

A SELECTED PORTRAIT LENS, made by Dallmeyer, for sale. This lens has done some of the best known work in this country. It was a premium lens, originally costing over two hundred dollars. It can be seen at the warerooms of The Scovill & Adams Co. It goes to the highest bidder. Call for or address "PREMIUM LENS," 423 Broome St., New York City.

ANDRESEN'S PURE SULPHITE, for Amidol, Para-amido-phenol, Rodinal, Eikonogen, or Pyro. Use only Andresen's *Pure* Sulphite of Soda. (See advertisement.)

"AMATEUR PHOTOGRAPHY," by W. I. Lincoln Adams, is "A Practical Guide for the Beginner." Illustrated. Paper covers, 50 cents; cloth bound, $1.

PHOTOGRAPHERS who haven't time to make their own Platinotypes should carefully pack their negatives and send them (six 5x7 negatives properly packed in cotton can be mailed) by express. Send for lists.
THE PLATINOTYPE CO.,
1624 Chestnut St., Philadelphia.

"ARISTO LITMUS," the most sensitive Litmus Paper in the world. Sample bottle free to any address upon receipt of 5 cents to prepay postage. (Regular price, 15 cents per bottle. W. P. BUCHANAN, Philadelphia, Pa.

PHOTOGRAPHIC BROKERAGE.—Established especially to furnish carefully selected outfits of any make or grade to those living at a distance. Address
C. M. BROCKWAY, 33 Worth St., New York.

BARGAINS.—Several fine Outfits, but little used. Lenses, Shutters, etc., at way below cost prices. For particulars address
C. M. BROCKWAY, 33 Worth St., New York.

TRY IT!—"The Developer of the Future," Dr. Andresen's Amidol. In solution, ready for use, 50 cents per 8-ounce bottle, with full directions. Dr. Andresen's Pure Amidol in 1-ounce bottles, 75 cents per bottle.
THE SCOVILL & ADAMS CO.

DON'T FORGET ME when you are away for the summer. You can send your Kodak, Hawkeye or Kamaret to me packed in a starch box, express collect, and I will develop and print and reload in less than one week. SAMUEL FRANKENHEIM, Practical Photographer, 45 Fulton Street, New York City.

S. P. C. EIKOQUINOL DEVELOPER.—This "ne plus ultra" developer for timed and instantaneous exposures, lantern slides and all other kinds of transparencies, photo-mechanical work and bromide paper prints is now in stock and for sale at 35 cents per bottle of 8 ounces. No other developer is now used by the members of Chautauqua School of Photography; no other has attained to equally fine results.
THE SCOVILL & ADAMS CO.,
423 Broome Street, New York.

PHOTOGRAPHERS who have not the time or facilities for doing outside or interior work should never lose an order, as I am prepared to make their negatives for them of every description or any size up to 20 x 24. Printing and developing for amateurs or the trade as heretofore. I do nothing but the best work. Come and see me.
C. M. DARLING, 122 West 36th St.

A STEREOSCOPIC HENRY CLAY CAMERA FOR SALE.—This camera has been thoroughly tested and is as good as new. Address "STEREO.," care THE PHOTOGRAPHIC TIMES.

WE HAVE JUST received another consignment of German Glass Baths. These are *perfect* goods, and admit of the dipper to the very bottom. We offer them at the following prices:

Size, 4 x 5	each,	$0.80
" 5 x 7	"	.95
" 7 x 10	"	1.30
" 9 x 12	"	2.00
" 11 x 14	"	3.50

THE SCOVILL & ADAMS CO.

Dr. Andresen's Amidol on Top!—An arrangement has been made by the importers of the rival Amidols by which the importers of the Hauff Amidol agree not to import or sell any more of that article in this country. Dr. Andresen's genuine article will hereafter be the only Amidol imported in this country. We are the sole agents for Dr. Andresen's Amidol in this country. The prices for this energetic developer are as follows:

In 1 ounce cans,	$0.75
In ¼ lb. "	2.75
In ½ lb. "	5.25
In 1 lb. "	10.00

Amidol Cartridges (making 16 ounces of developer):

In packages of 5	$1.00
" " 10	2.00

If you have not yet tried this developer, send to us for a sample, with full directions for its use.
THE SCOVILL & ADAMS CO.,
423 Broome St., New York City.

Sole Agents for Amidol in the United States. For sale by all dealers.

USE WUESTNER'S New Eagle Ortho Plates. None better. Sold by
THE SCOVILL & ADAMS CO.

THE ELDORADO BENCH AND WALL COMBINATION makes eight different combinations, every one of which is effective and artistic. Just introduced by THE SCOVILL & ADAMS CO. Price reduced to $15.

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The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price-list, including 25 sheets of Collins' best quality White Cards:

No. 2, 10x12 for 6½x 8½ Photographs	$2 00
" 3, 11x14 for 8 x10 "	2 25

Price-list, including 25 sheets of Collins' White Muslin-Back Cards:

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MORAN. 1874. 1893.

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The Local Class of the School closed on May 8.

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Tuition fee, for ten lessons, including the use of apparatus and utensils, - - $7 50

Plates, films, chemicals, paper, mounts, etc., will be furnished students at list prices.

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METOL is unsurpassed for all around work.

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MANUFACTURED BY

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Keep better than any others.

Easily soluble in water.

Do not stain.

PRICE, - - 75 cents per oz.

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A retoucher; wages $12; must be a good workman; rapidity not essential. A German preferred. Address W. E. W., PHOTOGRAPHIC TIMES.

A first-class retoucher; situation permanent if satisfactory. Send specimens of retouching when applying, and state what salary expected per week. No reply will be sent to any letter unless specimens accompany it. Address Paul Tralles, 808 Seventh St., N. W., Washington, D. C.

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Young lady wishes a position in a photograph gallery as a first-class colorist, spotter and mounter; also competent to take charge of reception room; can furnish first-class references. Address A. V. B., care D. Garber, 747 Broadway, New York City.

First-class operator and retoucher, competent to take charge of a gallery, will be open for an engagement on September 15th. Address Photographer, P. O. Box 374, Greenport, L. I.

Position as operator and dark-room man; can retouch; long experience in good galleries; east of Cleveland, Ohio, preferred. Address J. W. S., care THE PHOTOGRAPHIC TIMES.

By a lady, position with a photographer to learn the business; can be useful as printer; willing to work the first month without salary. Miss Grace D. Phair, Anderson, Grimes Co., Texas.

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Ask your dealer for ANDRESEN'S AMIDOL, "NON-COCKLE" PASTE, "THREE CROWN" PAPER, THE IMPERIAL "NON-HALATION" PLATES, "ACME" PAPER, THE (BP) SPECIALTIES, HARVARD and CARBUTT PLATES, HELMOLD'S HARDENING MIXTURE, "WATERBURY" CARDBOARD.

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O. C. CO.'S SPECIAL Blue Paper is a reliable article, and once tried always used. Fresh *every* day—never sent out streaked or stale. Mailed free. Per yard (27 inches wide), cut to any size, 25 cents. Sample, 5 cents.

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BY MISS ADELAIDE SKEEL.

"STORIES CAUGHT BY THE CAMERA STRAIGHT FROM LIFE."

Will be sent, postpaid, **FREE,** to any one sending Five Dollars with a new subscription to THE PHOTOGRAPHIC TIMES.

This is a handsome book of 200 pages, royal octavo, and sells for 50 cents in paper covers.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome St., New York.

A LETTER WHICH EXPLAINS ITSELF.

WORLD'S COLUMBIAN EXPOSITION, DEPARTMENT OF PHOTOGRAPHY.

HARLOW D. HIGINBOTHAM, Manager.
C. D. ARNOLD, Official Photographer.
CHICAGO, July 2d, 1893.

THE SCOVILL & ADAMS CO.,
New York, N. Y.

Gentlemen:—I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography, World's Columbian Exposition.

All goods for this work were purchased from the best workshops of the world, with a view of obtaining the best possible results during their use, and of obtaining the largest possible salvage after the Exposition is over. Your apparatus is, in my opinion, the best made.

Very sincerely,
C. D. Arnold.

COLD BATH Platinotype Paper (black tone only).
Hot Bath Platinotype Paper, Sepia Tone.
Both ready for printing. Mailed in tin tubes.
Special developer for both papers, and Sepia Solution.
Platinotype Card Mounts. These mounts are especially beautiful.
Send for price lists and directions.

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Give it a trial and judge for yourself of its merits.

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ANOTHER.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION.

Please insert the inclosed copy in THE PHOTOGRAPHIC TIMES for four weeks, at 25 cents per line, on the page of Business Notices.

I advertised but once in your paper and the result is that I have several new customers; whereas, I have a running advertisement in at least two other journals—new customers, or even correspondence, nix.

Samuel Frankenheim.
Practical Photographer,
August 1, 1893. 45 Fulton Street, New York.

"I AM MORE and more pleased with my Henry Clay outfit. I made a negative recently that I think is an all-around triumph for box, lens and shutter."

Val. W. Starnes,
Augusta, Ga.

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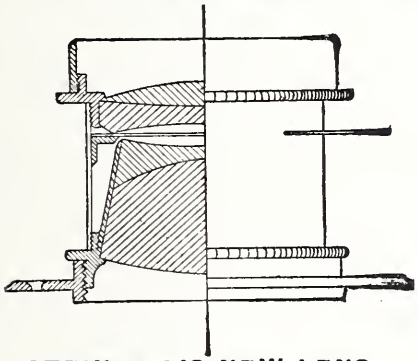
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We are in the market for a few first-class negatives. Send a sample print on FRENCH SATIN Jr. and name your price.

FOR SALE BY THE SCOVILL & ADAMS COMPANY.

THE UNRIVALED STEINHEIL LENSES.



STEINHEIL'S NEW LENS.

These Lenses not only maintain their old-established reputation, but continue to lead in the field of progress. Made in six different series for every description of work. Special attention is called to

Series No. II, Patent Antiplanatic, the newest conception in rapid lenses. For Instantaneous Portraits, Large Heads, Full Figure Groups, Architecture, and Landscape. A marvel of illumination, depth and rapidity. No Photographer or Amateur should purchase a lens before testing a Steinheil, Series No. II. See accompanying cut.

Series No. III, the famous Aplanatic tube, the illumination of which has been increased, and which is recommended for large Portraits, full-size Figures, Groups, Architecture, and Landscape.

Series No. VI, Wide Angle Aplanat, which has no rival for copying Maps, Charts, Paintings and Engravings. It is the Photo-lithographer's favorite.

Send or Illustrated Catalogue and Price-List to

THE SCOVILL & ADAMS COMPANY.

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S. P. C. Amidol Developer, made from Dr. Andresen's Pure Amidol.

TWO TESTIMONIALS:

"I want to say that Dr. Andresen's Amidol is immense. I recently made some lantern slides with it, and found that with one-third the exposure which other developers required, Amidol developed beautiful positives, just like wet plates, in appearance. It is very energetic and powerful; but the best of it all is, that it makes a dry-plate slide look like the beautiful old collodion plate. I used the S. P. C. Amidol solution." JOHN C. HEMMENT.

To the Editor of THE PHOTOGRAPHIC TIMES:

Dear Sir: * * * * * * * * * * * * * * I send you also a lantern slide made with the Amidol developer, as you said that you had never tried it for diapositives. I found it works better for slides more highly diluted than for negatives, viz.: ½ ounce of your developer with 2 or 3 ounces of water, and this is sufficient for a dozen slides. I like it greatly. DR. S. B. WARD.

[The slide is of an excellent neutral color, with splendid details and of absolute clearness.—Editor of THE PHOTOGRAPHIC TIMES.]

Put up in eight ounce (8 oz.) bottles, with full directions for use.

PRICE, 50 CENTS.

THE SCOVILL & ADAMS COMPANY, Trade Agents.

"NON-COCKLE,"

FOR MOUNTING PRINTS.



40 Cents per Bottle.

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Trade Agents.

A RELIABLE BUSINESS DIRECTORY.

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We can Supply all your Photographic wants.

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JOHN H. DALL,

Photographic Supplies,

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Established in 1850. SAN FRANCISCO, CAL.

R. M. Davis. DENVER.

The only EXCLUSIVE Photo Stock House between the Missouri River and the Pacific Coast.

THE SCOVILL & ADAMS CO.,
Successors to
Photographic Department Scovill Manuf'g Co.

PHOTOGRAPHIC MATERIALS.

W. Irving Adams, Pres't.
H. Littlejohn, Sec'y.

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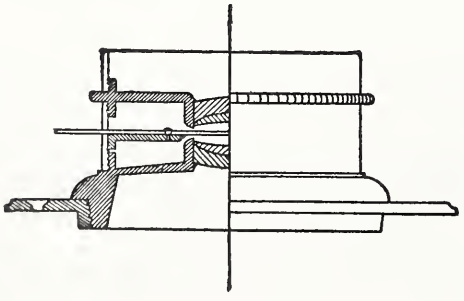
"Have I or have I not exposed that plate?"
"If exposed, was the plate used for that prized picture?"
"Shall I incur the risk of making a double exposure?"

henceforth will have themselves only to find fault with if they do not procure and use in their dry-plate holders the patent registering slides, or as they have been called "Record Slides." These can be written upon with slate or lead pencil *ad libitum*, and the writing erased without injury to them.

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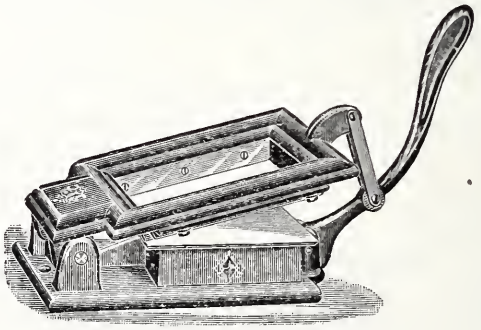
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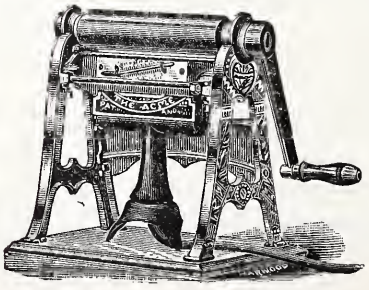
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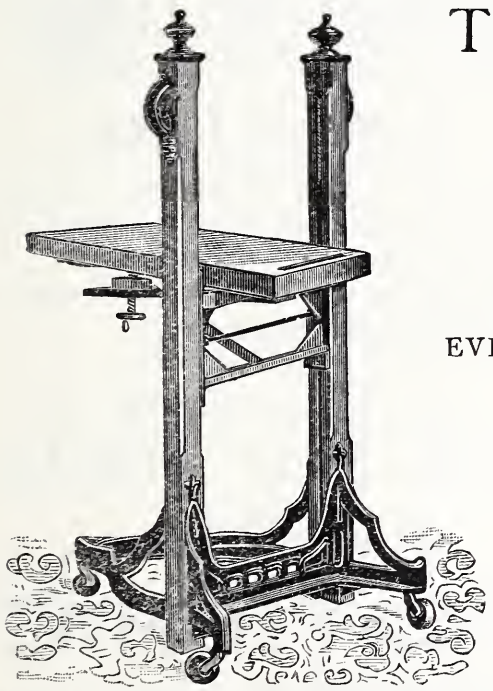
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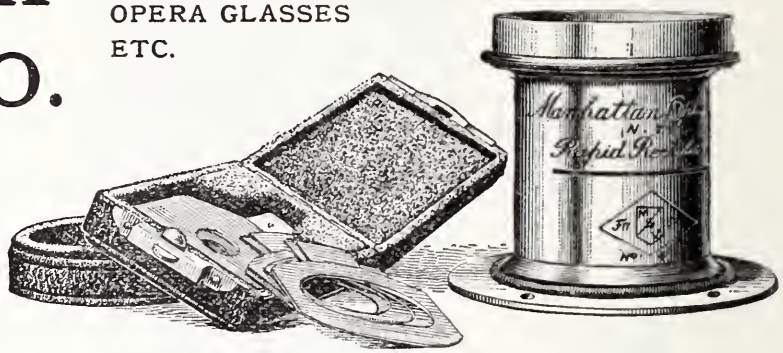
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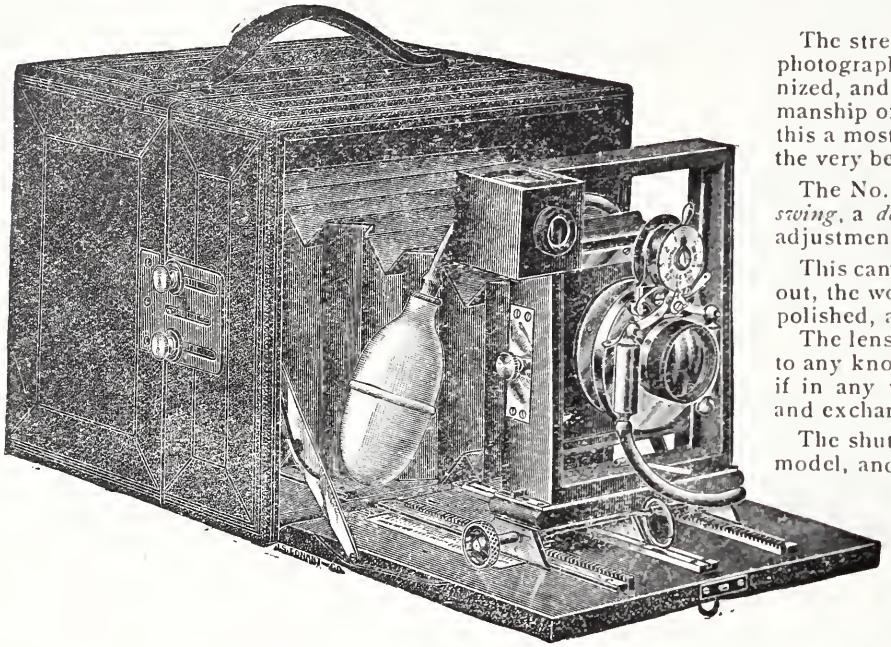
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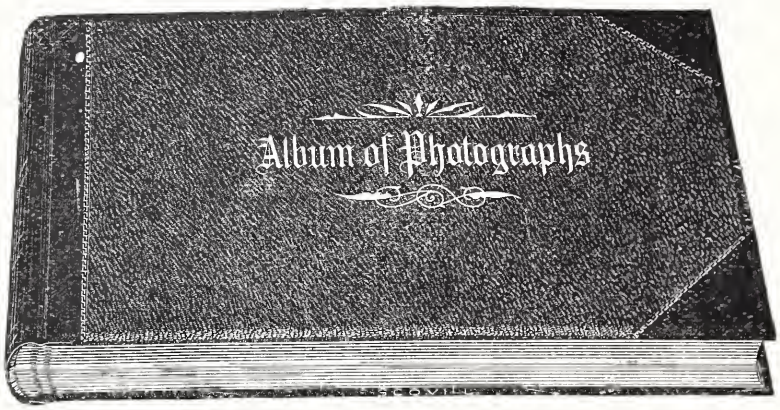
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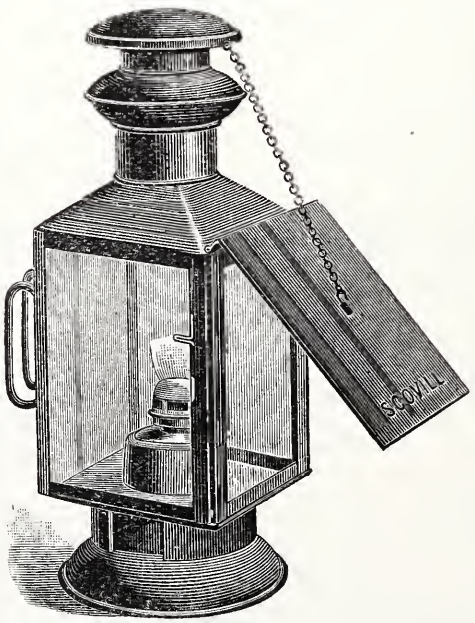
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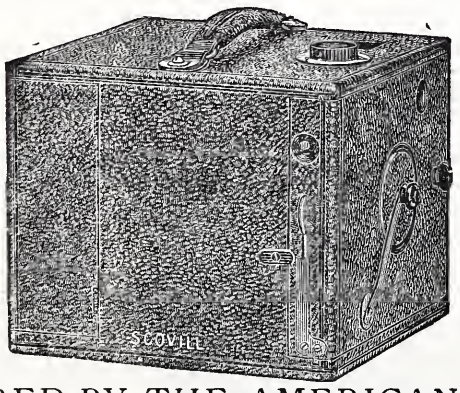
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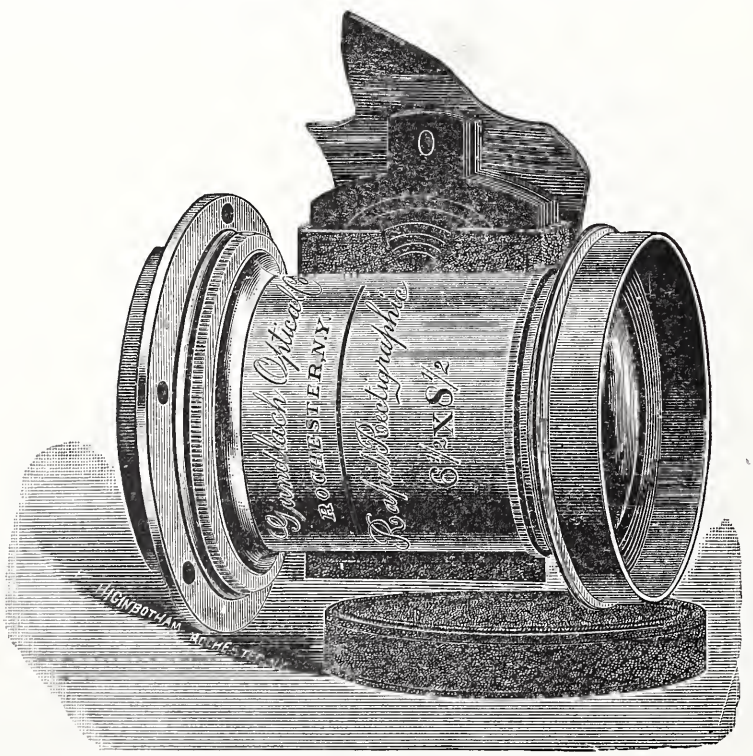
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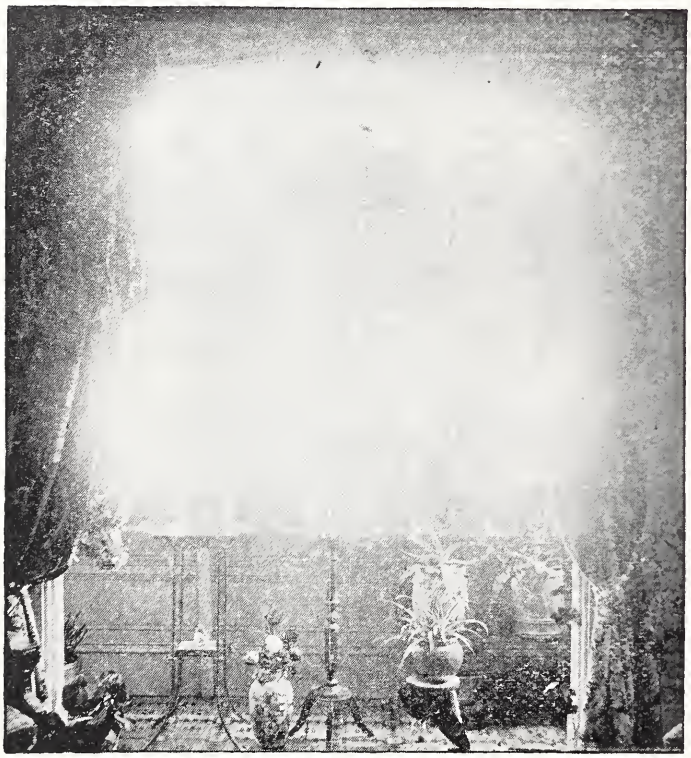
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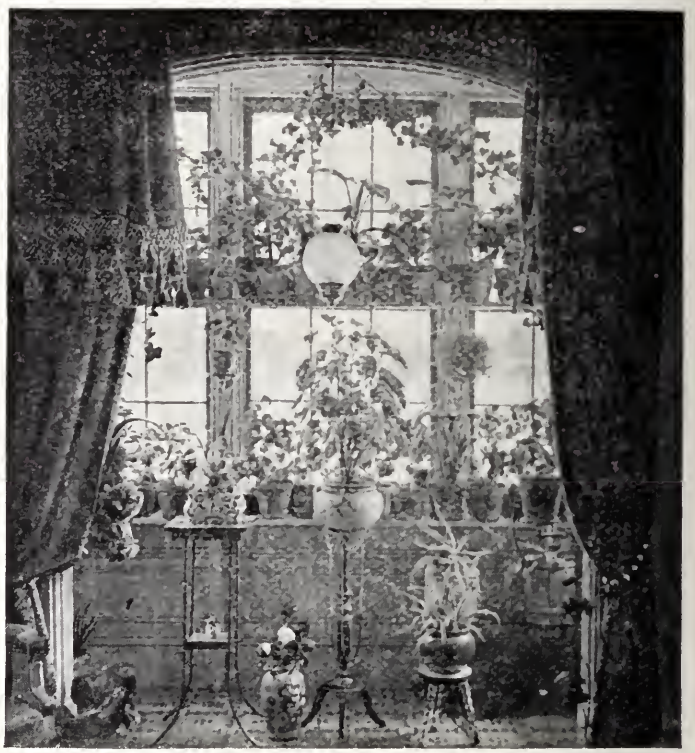
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ETCHING FROM LIFE

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. AUGUST 25, 1893. No. 623.

LEONORA VON STOSCH.

OUR picture this week is an excellent example of portraiture by the well-known artist and photographer, Falk. It is an enlargement from a cabinet portrait of the famous violinist Leonora von Stosch, and is reproduced by the photogravure process.

HAND-CAMERA FAILURES.

PROBABLY of those who practice out-door photography no one experiences so many failures as the hand-camera worker. To what must we attribute this? A careful study convinces us that it is almost entirely through want of thought on the part of the operator. We have been acquainted with conscientious workers who, when using an ordinary camera and making time exposures, will study the effect of light and shade and make a correct exposure in accordance with these factors, but directly a hand camera is used, snap shots are made here, there and everywhere utterly regardless of the laws of photographic exposure. The result is, of course, natural enough. The waste-box soon requires emptying. "It is an ill wind that blows no one good" we are told. In this case we presume the evil breeze is wafted in the direction of the plate makers, although we imagine that even these gentlemen would sooner have good results made upon their productions than bad ones. For usually in the case of failures the blame is laid upon the plates.

As we have no doubt that there are now hundreds of our readers who are hard at work making hand-camera pictures for our first competition, and as we want to see some really good work entered, we would like to offer a few suggestions. First of all, do not imagine that you can make a snap-shot or instantaneous picture of everything you see. This can only be done when all conditions are favorable. Do not try to make twenty or more exposures in one day, but try for six pictures, each one made with careful consideration. The hand-camera worker, to avoid a multitude of failures, must have a system, otherwise he will find himself constantly making mistakes in forgetting to change the plate, the focus, or the speed of the shutter, or the stop, and remembering it only when it is too late.

Unless anything near at hand is required to be taken while in rapid motion it is not advisable to expose with a shutter set for a very high speed. If the light is very intense as is often found at sea-side resorts, or with very open or brightly lit landscapes, it is preferable to use a smaller stop than to increase the speed of the shutter.

Under-exposure cannot be remedied; but with slightly over-exposed plates, good pictorial results can be obtained if developed by a tentative process. It will therefore be seen that any error should be in slightly *over* rather than *under* exposing.

A very great point in successful hand-camera work lies in the method adopted of holding the camera as firmly and steadily as possible. Rest it firmly against the chest or under the chin, draw in the breath and make the exposure, pressing as lightly upon the button as possible so that there shall be no movement.

By giving the fullest range of exposure the best and softest effects are obtained.

Lastly, do not attempt impossibilities by making instantaneous shots at objects that a little thought will convince you require a time exposure of several seconds. We remember once meeting a benevolent old gentleman making photographs on the press-the-button system. It was in a dark spot, and we were giving exposures of twenty and thirty seconds, during which the sanguine amateur was pressing the button here, there and everywhere, making exposures with the rapidity of lightning. Surprised at such a proceeding we ventured to accost him, imagining perhaps that he possessed some secret process.

"Have you succeeded well?" we inquired. "I really don't know," he replied, "I haven't received any back from the company yet." "Oh," we said, "then you do not do the developing and finishing yourself?" "Oh, no," he replied, "but I could, you know—I have a paper of instructions." Poor, sanguine old gentleman, he fondly imagined that the whole process of photography could be learned with a paper of instructions. We were compelled to turn away, not having the heart to undeceive him.

In forwarding pictures for our competition we would particularly wish to point out to our readers the necessity of making a careful study of the rules and conditions. This will prevent disappointment, for competitors will not like to find, after taking the trouble to make pictures for this competition, that they have been disqualified through non-observance of any of the rules.

DEVELOPERS SYSTEMATIZED.

The number of new developers that have lately been put on the market make matters exceedingly complicated for the photographic chemist. In a recent number of the *Photographisches Archiv*, R. E. Liesegang endeavors to systematize them. From his remarks we extract the following:

Mendelejeff arranged the then known elements into distinct order and in accordance with their properties, formed of them a natural system of elements. He foresaw the discovery of hitherto unknown elementary substances, and even described their presumed properties.

Since then many new elements have really been discovered, and their properties do coincide with those prognosticated.

By similarly speculating the color-manufacturing chemist has found dyes by calculation, organic combinations unknown before.

Such extraordinary successes in the sister sciences have led the photo-chemist to similar trains of thought upon his own field.

This occurred first by determining the constitution of those chemical combinations which are able to bring forth the latent bromide of silver picture. Other instances will evidently follow soon, and a system of photolytics will assuredly be established before long.

Hitherto experiment alone could decide whether a combination was capable to functionate as a chemical developer; at the present time knowledge of its formula is sufficient to do so.

The enormously large number of developers that have appeared in connection with the fundamental labors of Dr. M. Andresen and the brothers Lumière are excellent proofs of it.

The developing force of para-amidophenol, of amidol, metol, reducin, and others, has been found by calculation—not accidentally.

The great importance of the Lumière-Andresen system leads us to consider it more in detail.

Hydroxylamine hydrochlorate and sulphate have for several years been used as dry plate developers. That the free basis of these salts possesses a much more energetic developing power might have been expected, and several methods to prepare them have of late been made known.

Hydroxylamine consists of two radicals: hydroxyl OH and the amido group NH_2. Its energetic reducing power is after Berthelot and André, conditioned by the transformation:

$$NH_3O = N + H + H_2O + 45,2\ Cal.$$

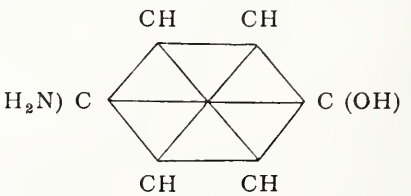
The combination is not at all permanent, and of scientific interest only.

Were it possible to obtain the basis by electrolytic process it might easily become valuable in practice also.

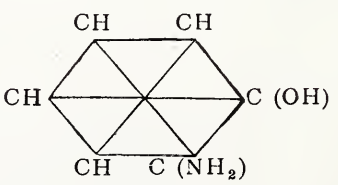
If we deposit the radicals NH_2 and OH of hydroxylamine in place of two hydrogen molecules of a benzole ring, three isomeric combinations are possible.

The developing force of hydroxylamine is not destroyed, when, according to Claus's benzole formula, a direct unison of the two groups is retained.

Para-amidophenol and ortho-amidophenol are



developers, while all developing power is anni-



hilated when the two radicals are deposited in meta position.

Through the augmentation of the molecule a depression of the developing force does occur however, and the addition of caustic or carbonated alkalies becomes a necessity; and for that reason do para-amidophenol and ortho-amidophenol de-

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velop only when in alkaline solution. But when a radical, functionating as an alkali does, is directly deposited on the molecule, a further addition of carbonate or caustic alkali is unnecessary.

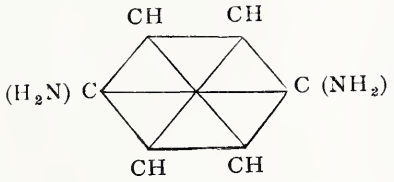
Thus develops diamido phenol $C_6O_3 \begin{cases} OHI \\ NH_2 \\ NH_24 \end{cases}$

in neutral or very weak acid solution, because of the substitution of NH_2 for free alkali developing power increases, when additional NH_2 groups are deposited. Substituting of one or more hydroxyl groups have the same effect.

But when between the two hydroxylamin groups no benzol nucleus is interposed, but instead of it a fatty body, developing force is utterly destroyed.

When the hydroxyl groups of hydroxylamin is substituted by another amido body, hydrazin H_2 N—NH_2 is produced, which according to Andressen is a developer when in alkaline solution.

The aromatic derivatives analogous to the above described developers of the hydroxylamin group have also their proportions. Thus are paraphenyl endiamin



and its isomeric ortho combination developers. The meta combination is not. The same may be said of paroxyd of hydrogen and its corresponding derivatives. Hydrochinon (para dioxy benzole) and pro catechin (ortho dioxy benzol) are developed, Resorim (metadioxy benzol) is not. Pyro gallol developed to a slight degree without the addition of either caustic or carbonate alkali, simply because their function is performed by the deposit of a third hydroxyl.

EDITORIAL NOTES.

The marvelous photographs in colors, of which the papers have been writing so much about, are now on exhibition at Chicago, and are apparently a great disappointment to all. The colors are in no way natural nor even confined to the objects in the picture. It was stated that they could only be viewed properly when thrown upon the screen. However, the French gentlemen in charge of the exhibit at the Fair gave an exhibition at the Chicago Camera Club the other night, projecting these pictures upon a screen by reflection, but the whole, we are told, was a dismal failure. The lecturer tried to explain it by the absence of proper condensing lenses, and another exhibition is promised for the next monthly meeting. Apparently the wonders of this discovery only exist in the glowing descriptions given of it.

Our esteemed colleague, the editor of *Anthony's Photographic Bulletin*, prints the entire proceedings of the Chicago Convention of the P. A. of A., in his issue of August 12th, stating that "in its work and influence it has probably been the most notable Convention ever held in this country." "At the same time and city in which the World's Fair is in progress," he continues, "it has attracted an attendance that has been notable for its quality and numbers."

Of course such a statement would have been impossible if our esteemed contemporary had been present in Chicago during the Convention. As a matter of fact the Convention was the smallest ever held by the Association, and in work accomplished was the least notable, there being but one paper presented, as stated in our report (and that paper was not read); there being not even a report of the progress of photography; no demonstrations of any kind, and not even a display of photographic apparatus. One of the distinguishing features of the Convention was that there was not a camera on exhibition anywhere in the hall!

A writer in the *Science Illustrée* publishes a formula for making a substance as transparent on glass and at the same time very pliable and strong:

"Dissolve 4 to 8 parts of gun-cotton in a mixture of alcohol and ether, in proportion of 1 of gun-cotton to 100 of the combined liquid, after which add 2 to 10 per cent. of castor oil, or any other oil unsiccative, and 4 to 10 per cent. of Canada balsam. Flow this mixture on to a glass plate, and dry in a current of air at 50 degs. The result is, a leaf of hard substance as transparent as glass, and very nearly unbreakable, resisting perfectly the action of all salts, acids, and alkalies."

A very simple combined fixing and toning bath is recommended by Professor Valenta. He discards now all Rhodan combinations and relies simply upon hyposulphite of sodium, nitrate of lead and gold chloride. The best proportion of these substances in solution, equally well acting upon all commercial chloride of silver emulsion papers are:

Water	1000 cm.
Lead nitrate	10 gr.
Hyposulphite of sodium	200 gr.

Before using add of a

Chloride of gold solution 1:100..... 50 gr.

The bath may be used immediately after preparing it. The durability of the print is undoubted, as long as gold is still present and sulphurization of the silver deposit does not occur.

Miss Lucy D. Baldwin, of Roanoke, Va., a graduate of the Chautauqua School of Photography, has sent us a highly interesting picture, representing a street scene of said city during a heavy rain storm. The photograph was taken instantaneously. The street is inundated with water, reaching nearly to the hub of the wheels of a passing grocery wagon. Negro boys with brooms and other implements are trying to keep the gutter clear from being obstructed, a scene photographed that attracts highest attention. But most interesting to the technical photographer is, that at least in the central part of the plate, a close stop being out of the question under the circumstances, the pouring and heavy rainfall is distinctly impressed upon the plate by lines of lighter color than the background of brick and brownstone houses, sharp and distinct lines partly entire, partly interrupted in their path. And as the clown follows serious action in the drama, so here in this earnest display of natural forces the comical is not wanted. A negress leans out of a window in almost impossible position viewing with idle curiosity what is going on before her.

Our admiration and recognition is due to Miss Baldwin for the eminent success attained in almost everything she has attempted to photograph.

Colored Rays in White Light.—In 1000 parts of white light are—

Red rays	54 parts
Orange-red	140 parts
Orange	80 parts
Yellow-orange	114 parts
Yellow	54 parts
Greenish-yellow	206 parts
Yellowish-green	121 parts
Green and greenish-blue	134 parts
Blue	40 parts
Blue-violet	20 parts
Violet	5 parts

From which we deduce that the brighter light rays exceed quantitatively the chemical active rays, a phenomenon, leading to the opinion, the sensitive media, at present used in photography utilia, but a part of the light reflected from the object to be photographed.

FREDERIC HART WILSON.

We were shocked to hear of the death of Frederic Hart Wilson, only son of Edward L. Wilson (well known to all photographers), which occurred at Hygiene, Colorado, Tuesday morning, August 8th, in the 28th year of his age.

Young Mr. Wilson was unmarried, and had gone to Colorado in search of health. He settled at first in Colorado Springs, and then in Denver, but his trouble, instead of getting better, gradually grew worse, until his sad death, which occurred at Hygiene.

Mr. Wilson was an artist as well as a photographer, and had been one of the most valued instructors in the Denver Art League. He was a trained writer, having been editor-in-chief of the *Princetonian* during his college days, and later serving with conspicuous credit to himself on the Philadelphia *Daily Press*, the New York *Journal of Commerce*, and being a frequent contributor to *Life*, *Youth's Companion*, *Harper's Young Folks*, *Every Thursday*, and other papers of a general circulation, as well as a valued contributor to The Photographic Times and his father's photographic magazine. He wrote more especially from the art standpoint, and frequently illustrated his own articles. He was a regular contributor on art to Nadar's Paris *Photographer*, and spent over a year editing an illustrated book entitled "Ohio in Art." It was this last work which broke his health, and in the spring of 1892 he went West in search of health. He rallied a little at the first, but declined again, and gradually grew worse until his death on August 8th. By his request he was buried at Longmont.

Mr. Wilson was an unusually promising young man. He graduated at Princeton College at an early age, taking a high stand in all his studies. He commenced his career as a journalist in Philadelphia, and all his friends predicted an honorable and useful career for him in this profession, but his decided leanings toward art induced him to give up the pen for the pencil, and during the last years of his life he did less general writing than he did drawing and illustrating.

The writer may be said to have known Frederic Hart Wilson from his earliest boyhood, and has always seen a good deal of him. He was considered an unusual boy, early showing a great longing for study of the more advanced kinds, especially the sciences. Although he possessed more than ordinary ability, his disposition was such that he did not show it to the casual observer, so that he was probably under-estimated by those who did not possess a tithe of his natural capability. Those who knew him best respected him most highly. He had an honorable career before him, and leaves many sad friends behind. *W. I. A.*

PHOTOGRAPHIC ADVENTURES IN THE SIERRAS.

California is justly called the campers' Paradise. But lo to the camper who ventures into the mountainous districts in mid-winter, for he will be greeted with rains, snow and blizzards, the same as in the North-East.



OURSELVES.

In the beginning of December, 1892, we undertook to visit the Calaveras Big Trees, not so much through a desire to be snowed in the mountains as for the want of any other time in which to make the attempt. Fully aware of the dangers of the trip, we prepared ourselves for all emergencies. We purchased a team of horses and a wagon with a water-proof cover. In this we stored away our provisions, blankets, tents, together with a supply of arms sufficient to equip a small army. While my two companions had charge of the rifles and revolvers, and were ready to shoot whatever came up, I, less bloodthirsty, never leveled anything but my cameras upon the wondering natives. A large chest containing twenty dozen plates of three different sizes, viz.: 4x5, 5x8, 6½x8½, three cameras, a Scovill 8x10, a 4x5 and a Detective 4x5, two tripods, drop shutters, flash powder, etc., was what I contributed to the make-up of the cargo. The weight of my outfit was such as to cause an incipient riot in the party when we attempted to lift the chest into the wagon. Our subsequent disasters were of course attributed to this so-called useless load.



STONE CARRAL CREEK.

However, I made the best of everything, and was always on hand with my Detective whenever an accident befell us. The first one happened in the streets of San Francisco, when the front spring of the wagon broke. After having the necessary repairs made, at the cost of a delay of several hours, we continued on our journey. During the first week we traveled over some very rough roads, and, on several occasions came near meeting with a fatal disaster.

We spent six days in camp near a pretty lake, where I secured dozens of beautiful pictures, the weather being fine, although the temperature was constantly below freezing.

The first time that I attempted to take a flash-light of my companions, who were hugging the camp fire, late one night, a dead limb of a tree fell upon my 8 x 10 camera, smashing the ground glass and otherwise injuring the box. This accident, simple as it was, caused us a delay of several days, as we had to send to San Francisco, two hundred miles away, for a new ground glass, and then travel twenty miles to the nearest village to get it. It was not until then that I realized how important it is to have an extra ground glass in the country.



CROSSING THE PLAINS ON THE RETURN FROM THE SIERRAS.

At Copperopolis we visited some gold mines, where I secured a number of interesting views.

At last the rain set in for good. One day, after traveling for hours under a steady downpour, we came to a steep grade, where, as we expected, we got stuck. A native had already warned us not to attempt the crossing of the ridge, as the road was there bottomless. We heeded not his counsel, but drove on, while he followed, no doubt to see the fun. The look of consternation which was soon apparent upon our faces, moved the kind-hearted native to such an extent, that he returned to his farm and came to our rescue with two fresh horses. Meanwhile I had been actively engaged in taking shots at the various scenes of the eventful crossing of the summit. We got out of the mud hole with a broken tongue and several minor accidents.

At Angels' Camp, a mining town, where we arrived that night, we visited the rich Utica mine, where more views were secured.

From Angels' Camp onward we traveled through

water and mud, making but eight miles in a day. (It might be said here, that our load being too great for a mountainous country, we were compelled to walk all the way, and to assist the horses on the steep grades.)

When we got within fifteen miles of the Big Trees, we were told by a native who had come down from the grove on snow-shoes, two days before, that the snow was several feet deep a few miles up the road, and that we could never get there with our wagon.

Determined as I was to see the Big Trees in mid-winter, I resolved to start alone, on foot, with my camera and a knapsack filled with dry plates and biscuits. I was told that I would surely perish in a blizzard.

My companions promised to go with me if I would only wait a few days longer. This I did. During the two or three days which we passed in camp, the weather became warmer and the rain fell steadily. Meanwhile we visited a beautiful cave, the like of which can be found nowhere (according to our guide). Here I took a number of flash-lights.

Finally we started for the Big Trees, leaving our wagon behind. It took us two days to make fifteen miles in the rain. Seldom have we been over a worse road. It was a wonder to me that my cameras were not ruined, as I insisted upon taking views along the road. At the Big Tree Grove we photographed the various giants during a thunder and lightning storm. This time everything got soaked, including cameras and holders. Upon finding a sheltered spot we camped for the night. Before retiring, however, it being Christmas night, we enjoyed some milk punch, which we prepared with snow, condensed milk and whisky. The storm lasted all night, so the following morning we started back silently, our enthusiasm for winter scenes being no more.

The return was disastrous. Our horses nearly perished from exposure; the wagon broke down on several occasions, one spring after the other giving away, and we came near being lost altogether while crossing a roaring torrent. Here we sank down to the hubs into the soft soil, the tongue broke again, the horses got frightened and were rescued with difficulty, the wagon kept on sinking and would have fallen over into the stream had we not unloaded it at once. After working three hours in effecting a rescue, we succeeded in reaching the opposite bank after being up to our waists in the icy water.

In a fit of despair, we wrote upon the sides of the wagon "Frisko or bust." Many a time it look as if we would "bust" first.

The last and greatest misfortune which befell us, was the giving out of our supply of provisions. We were now compelled to live on short rations of mouldy flour, which we converted into flap-jacks over a coal oil fire (there being no dry wood on hand, we dug a hole in the mud and filled it up with coal oil which we ignited, and thus cooked our meals). Naturally the good temper of the party suffered in consequence.



SUNSET.
STONE CARRAL CREEK, CALIFORNIA.

We reached home on New Year's Day much the wiser, and to the great delight of our friends, who dared not hope to see us alive again.

From a photographic point of view, this trip was a success. I returned with 220 exposed plates, which I developed in four days. Of this number, a dozen or more were damaged by light. It had been my intention to take with me a portable dark room, which would have saved me much useless trouble. If I failed to do so, it was owing to the haste with which we had to pack up at the last moment. In order to change my plates in the day time, I had to lie on the ground, resting on my elbows and allow myself to be covered over with blankets. Any one who has attempted to change

two dozen plates in this manner will wish for a portable dark room. At night the difficulties were less.

H. Phelan.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 454.)

PART II.

The Manipulation of the Paper.

Chapter VII.

Platinum and Uranium Toning.

Toning with platinum is rapidly becoming more and more popular with albumen or plain paper prints and with gelatino-chloride paper. The formula most suitable for this purpose is that given by the Platinotype Company as their developer. It was first recommended for this purpose by Mr. Alfred Stieglitz:

Solution I.

Oxalate of potash	5 ounces
Monopotassic orthophosphate	3 ounces
Water	50 ounces

Solution II.

Potassium chloroplatinite	60 grains
Water	2 ounces

For use take three parts of Solution I., one part of Solution II. and two parts of water.

Instead of the phosphate of potash in Solution I. the oxalate may be increased to eight ounces.

It is necessary here to caution the reader against purchasing anything but the true chloroplatinite of potassium and not the ordinary platinum chloride.

Lyonel Clark in his treatise on platinum toning gives the following instructions for toning: For holding the toning solution a glass-bottomed dish should be employed, the same as generally used for developing bromide papers. This is turned upside down, so as to have the sides as low as possible, and three leveling screws attached to the upper edge, which is now the lower one; and with these and the aid of a spirit level the dish is adjusted. By this means the toning solution is spread over a large area (in a thin but uniform layer), two ounces being sufficient to cover a dish measuring 18 x 15 inches.

The wet gelatino-chloride print, thoroughly washed and freed from silver, is next taken, and holding it by opposite corners, one in each hand, place one corner on to the surface of the liquid first, and then, lowering the right hand, allow the print to gradually float on to the liquid, in this manner pushing in front of it any bubbles that may have formed on the surface. The print is lifted off the toning bath as often as thought desirable, and the progress of the toning examined by transmitted light. If any redness is still observable in the deeper shadows of the picture it must be replaced. When, however, this redness has entirely disappeared the toning is complete. The picture is then slowly lifted from the liquid to allow of no waste of the solution, and thrown into a dish of water rendered alkaline by carbonate of potash or soda; or if the hyposulphite fixing bath be rendered alkaline, this addition is not necessary. The toning bath will not keep more than two or three days.

The fixing bath should be about one of hypo to five of water, and a few drops of ammonia added.

With platinum toning the processes of printing, fixing and washing are carried on in the ordinary manner.

It is often considered advisable to place the gelatine prints before toning into a saturated solution of alum. This will effectually harden and prepare them for the handling in the subsequent operations The tones obtained by this platinum method are very pleasing, and all operators should give it a trial. The process is not a difficult one and but little more trouble than gold toning.

The following extracts from a paper on "Platinum Toning as Applied to Gelatino-chloride Printing-out Papers," by Mr. James Brown, may be of use to those experimenting with this process:

"Printing is conducted in the ordinary way, any negative that is not either hopelessly thin or dense being suitable. It is not necessary to over-print any more than on albumen paper—in fact, to do so is in most cases distinctly harmful.

"After toning with platinum, no paper I have yet tried reduces to any great extent in a properly made fixing bath; and if we desire a mat surface, and so squeegee on ground glass, that operation considerably adds to the depth of the image; so, if we over-print, 'leatheriness in the shadows' will result. It is necessary to remember, however, that the depth of printing must have some definite relation to the tone we desire to obtain. This will be discussed when we come to the toning stage.

"The toning bath which I have found to be the best is a simple one:

Potassium chloro-platinite	1 grain
Citric acid	10 grains
Distilled water	4 ounces

"A platinum bath will only work when acid, and the use of citric acid instead of nitric, as usually

recommended, is a great improvement, due to Professor Burton, who found that the latter acid has a staining influence upon gelatine.

"Other baths have been recommended, which are not so good as the above and possess the serious disadvantage that they will not keep, whereas this one will keep indefinitely, provided the prints be properly washed before toning, so as not to contaminate the bath by silver salts. I have here a bottle containing a bath made up over two years ago, which has been in constant use ever since, strengthened when necessary by adding more platinum, which I keep in a dropping-bottle mixed in the proportion of one part platinum to twenty parts water. When of proper strength the bath is of a dark straw color, and as the toning agent is used up the solution becomes paler, so that by a little observation it is easily seen when the bath wants strengthening.

"Coming to the actual manipulations, the first item is the preliminary washing, which must be *thorough*. The first wash must be rapidly performed, so as not to keep the prints soaked in the dissolved-out silver, else yellowing of the high lights will result. After four changes of water, it is necessary to dissolve out all the remaining free silver by a salt bath. After a minute or two in this and another rinse in water, the prints are ready to tone. At this stage they are but little changed, and the process of toning, unless much prolonged, produces no effect that is visible to the eye. We only discover what tone we have got when the prints are in the hypo bath; but the action is so regular that success is certain. It is instructive, however, to see what color of image we are working upon by fixing a print without any toning. It will be found that the image suffers a very considerable reduction and partakes of a yellowish-red hue. By simply fixing without toning, warm-red tones can be got if we print deep enough to compensate for the reduction that takes place, and there is no reason to suppose that such images should fade any more than does a bromide print. Indeed, the chances are in favor of the former, as it has not been in contact with any salts of iron or acid clearing bath. I have spoken of the necessity of keeping up a definite relation between the depth of printing and the ultimate tone desired. Simply fixing a print much reduces its depth, but the more platinum we associate with the silver image the less does it reduce. Toning then proceeds on certain definite lines, the stages being red, reddish brown, sepia, brown, dark brown, and purplish brown. For the first stage printing ought to be continued till the deepest shadows are slightly bronzed, and the toning will take, say, five minutes. With such an over-printed image longer toning seems to intensify the print and to block up the shadows. For any other tone than red it is not advisable to print till the bronzing stage is reached. but to stop when the whites are slightly tinted, and toning will be accomplished in from five to fifteen minutes. The warmth of tone, which is the characteristic of this process, it is evident has for its foundation the yellowish red of the silver image, and, as we associate it with platinum in a greater or lesser degree, the tone varies from a warm red to the other shades I have named. There have been various attempts to completely substitute platinum for the less stable silver, but with no success. It was first supposed that the toning process was a depositing of metallic platinum upon the image; then it became the belief that a partial substitution took place; but Lyonel Clark in his book assumes, with considerable show of reason, that an alloy of silver and the nobler metal takes place. Be that as it may, it is a process which, for certainty and beauty of results, merits every one giving it a fair trial.

"After toning, the prints may be immersed in a weak solution of common soda, to neutralize any acidity present and stop toning, or may be placed direct in the fixing bath, made distinctly alkaline with ammonia, and not stronger than one part hypo to eight parts of water. For the sake of giving the prints a fair chance in the battle of life, it is advisable to have the hypo bath fresh and to fix for not less than half an hour. After thoroughly washing in copious changes of water, the prints are given a five-minutes' soaking in a bath of chrome alum of about twelve grains to the ounce. To avoid acidity, neutralize this with ammonia and filter out the dense precipitate which is formed. This is of the greatest advantage, as it hardens the gelatine and renders it almost impervious to damp. So great is its hardening effect that a print so treated and dried cannot again be softened and resists water almost boiling."

In toning with uranium the following formula has been recommended:

Chloride of gold	4 grains
Uranyl nitrate	4 grains
Chloride of sodium	60 grains
Acetate of sodium	60 grains
Distilled water	16 ounces

Neutralize the gold and uranium, previously dissolved in a little water, with bicarbonate of soda or chalk.

Stieglitz's methcd of toning with uranium is as follows. The bath is made up of—

Gold chloride	0.25	grammes
Uranyl nitrate	0.25	grammes
Sodium bicarbonate	5	grammes
Distilled water	300	c.cm.

and should be used immediately, as it does not keep. The prints are made very intense.

The following is the fixing bath especially recommended for use after this method of toning:

Hyposulphite of soda	2	ounces
Salt	1	ounce
Bicarbonate of soda	¼	ounce
Distilled water	20	ounces

Walter E. Woodbury.

(*To be continued.*)

PHOTOGRAPHY AS AN AID TO EDUCATION.

[World's Congress Paper by Prof. C. F. Himes.]

In the treatment of this topic within the necessary limits of a paper, the most restricted view of it will be taken. The general relation of photography to education will not be considered, but only some of its specific applications in a system of education, some of the peculiar educational resources it supplies in the hands of the teacher. The paper will therefore have nothing to do with the question of a school or college of photography, or what would be, perhaps, more important and certainly more feasible, the expansion of the courses of photography in techinal institutions, but it only deals with *photography in schools*, in purely educational institutions, and as part of a liberal education, and but a few of the most salient points will be touched upon, as suggested, by a long experience with it, in a course of instruction.

The subject presents two phases. First, what might be termed the objective phase, which involves the material aids, the peculiar appliances furnished by photography to the educator, and second, that which involves rather the subjective effects, the influences which its practice contributes to the discipline and development of faculties, mental and physical, which constitute the objects of education proper.

In its first phase there is scarcely a branch of instruction that it does not come directly in contact with and enliven (art, history, even metaphysics as well as physics, chemistry, astronomy, geology, natural history can be) by its pictorial illustrations of them, frequently embodying the most recent facts reached by this the shortest path of the investigator. But in this production of pictures for educational work, I think I am safe in saying photography has not done as much as, or rather the best, it is susceptible of.

It is only the most careful, thoughtful, painstaking, patient photography, and photography rigidly controlled by a distinct motive that develops its full educational possiblities. And I would add, that it is this kind of photography in the hands of the instructor that accomplishes its purpose best. But the improved processes of photography have made it so easy, or rather have relieved its practice of so much drudgery, that there is a great temptation to make exposures in a sort of drag-net style, hoping out of a great number. Somehow, accident or Providence will help out haste and want of thought, and furnish some good, perhaps some perfect results.

In illustration of what I mean by controlled photography, I may be allowed to mention some of my own struggles with the camera. In course of instruction upon glaciers, some of the excellent engraved reproductions from photographs, and photographs themselves only, created a wish for a few others to complete the series, to tell some facts more fully.

In a trip to Europe, the camera was sent from port directly to the Zermati region. It was met there and exposures were made on a dozen carefully selected views, and the whole outfit was reshipped to port to await sailing for America.

Views on every side, magnificent and beautiful, tempted the camera, but the dozen carefully selected seemed to be what was wanted most and to justify the time spent upon them and duplicate exposures. Fifty views less thoughtfully selected might not have included the dozen, or at least the best of the dozen.

There is, indeed, no more imperious master than the servant that has gained the upper hand, and there is nothing that will dominate a trip in Europe like an uncontrolled camera. If I may be pardoned another illustration from my own experience when using the camera for recreation, to emphasize this point, I have walked for miles around the market-place of a German town with my finger on the button of a hand-camera, and have returned to my hotel without having pressed it, simply because the pictures would not compose to suit me, or some thing or body moved in to mar them when they did suit me. Not many negatives may be secured in this way, but some gems may be. It is hardly necessary to say that this press-the-button photography, which tempts to take everything with the hope of getting something, has no place in the

educational use of photography; and yet even then there may be a tendency to multiply pictures rather than to select carefully. There may be a picture-fluency as well as word-fluency, which tempts to enlargement of discourse without corresponding edification.

After having obtained illustrative photographs, a pertinent question is how best to utilize them; what, if any, instrumental aids are there?

In this connection the magic lantern perhaps most promptly suggests itself. The lantern it is true has fallen somewhat into disrespute recently. This is also due to abuse of it and want of proper discrimination and thoughtfulness in its use. The improvements and modifications of recent years imparted to it such peculiar possibilities for illustration in the hands of the expert scientific teachers that a tendency was created to suddenly expand its applications. Instead of calling upon it to do only that which could not be done so well without it, wonderful ingenuity was expended to bring within range of lantern illustration phenomena that are far more impressive to a class of students in their direct presentation. The popular lecturer, too, soon found it an excellent name to conjure with, and by aid of modern photography has created such a demand for pictures without much lecture, that he now finds his highest success in fixing them upon the screen with the rapidity of a mitrailleuse from his double or treble decker lantern, leaving the impression upon his auditors similar to that of a view obtained from an express train. This species of lantern craze has tended to avert thoughtful persons from its use, and obscure to some extent its real merit.

The facility with which photography furnishes slides for the lantern constitutes even with the educational lecturer the temptation to overload a lecture with such illustrations, just as there is the temptation, on the part of the young lecturer, to overload a lecture with sensational experiments, that are apt to carry his audience beyond his control. The lantern in the hands of the teacher should be the servant, completely under control, never dictating to or directing the lecturer. Each slide should be as carefully selected for its pertinency and illustrative value, not simply facts, photographic excellence or its beauty, but as the experiment on the lecture table, or as a word in the discourse. They should be rigidly limited in numbers proportioned to the subject. To accomplish this as I have before intimated it is almost absolutely necessary that the lecturer should be the photographer. He should be able to call his illustrations from a wider range than the catalogues of dealers. These in the nature of the case are often wanting in freshness. As an example, the slides of scientific apparatus are for most part reproductions from leading text-books, often of old models, even where they originate in scientific laboratories. As the lecturer draws from the freshest fields of current literature for his subject-matter, so he should have access to the most recent periodicals of all kinds, even to the advertisements, which often emphasize a point best for his illustrations as well as perhaps to some little out of the way discovered historic treatise. Apart from the expense involved in having single slides, specially prepared by a photographer, no one can understand as fully as the teacher, in many cases, what is wanted, and no one will take the same pains to make the slide all it can be made, for much can be done even in photography in emphasizing desired features. Besides time might be a most important element in the case. In an emergency a negative and slide from it might be made in less time than would be required to take the subject to, and explain the wish to a photographer.

But there is a wide field for photography almost untouched, not restricted in its contributions to the lantern. Photographs of actual apparatus, not necessarily of detached pieces, but in groups illustrative of some phenomenon or some application, or, to go still further, arranged on the lecture table, supporting each other in the progressive course of a lecture, are available to the teacher photographer. These would afford permanent notes, full notes for the student, which might be supplied as blue prints to such as desired them. These photographs of line apparatus would not neeessarily take the place of diagrammatic illustrations or even text-book illustrations, but would supplement them, and make them real, and they might also have a peculiar value for lantern slides for future reference.

So too in the laboratory, apparatus of investigation, *in actual use* by the student, if photographed, would give a record often of general value, as well as of particular interest. Thus, supplementary to the evanescent pictures on the screen, often abnormal at best in many of their features, there might be formed permanent, accurate, highly valuable, as well as unique and peculiarly interesting collections for the student, the instructor, and the institution, and in many cases of general educational value.

But the educational methods of the day are more personal in their tendency. Even students in school do not receive their most effective instruction in crowds. The laboratory, the seminary are

suplementing the lecture each day more fully. The magic lantern thus recedes somewhat in importance. Even people are not as exclusively entertained in crowds. The photographs in the hands for close personal inspection, as long as may be desired, are much more satisfactory than even the best pictures upon the screen. In this connection a second instrumental aid can be mentioned that far surpasses the magic lantern in all respects. It is a little instrument; it has been neglected, overlooked, displaced by popular fads, but which to-day seems to be experiencing a revival not only of interest, but of intelligent interest, that will give it a permanent place on the library table, and it is to be hoped in the school-room. I allude to the *stereoscope*. It was introduced into the scientific world just as successful photography was given it by Dauguerre. Without photography it would have been little more than an exceedingly interesting piece of apparatus illustrative of a theory of vision, and with limited educational applications. With photography of to-day it possesses an ever widening field of usefulness for investigation as well as for education. It maps in space what the camera only gives in projection on a plane surface. It seemed at first limited in range to objects comparatively near until accidentally the pictures of Rutherford and De La Rue of the moon showed that even that body may be made to demonstrate its rotundity through its photographs in the stereoscope. On the other hand, it lays hold of the most minute object, and stereo photo-micography is almost an untouched field of photography, in spite of the interesting specimens of micro sterography produced which demonstrate its usefulness.

It will readily be understood how much higher value the photographs of what I have called line apparatus—of lecture-table apparatus—will acquire if stereoscopic. What might appear a confused mass in any ordinary photograph of the lecture-table, in the stereoscope resolves itself into a wealth of interesting details, all in their proper relations to each other in space.

Without the stereoscope much care might be required in disposing the apparatus so that in many places the picture might not present patches of black or white pasted on a background without intelligible interpretation; with the stereoscope it can be felt that the representation will present itself as it appears to the eyes.

Recently Professor Stine, of the Armour Institute of this city, outlined to me an exceedingly ingenious method for mapping the magnetic field in space by means of stereoscopic photography, as effective in its way as the mapping of a section of it by the many methods in which iron filings are employed. When we consider that not only form is thus reproduced completely, but many other features, notably lustre, the little instrument acquires a new educational value. Thus the valuable unique mineral specimen meets its complete reproduction.

It may be asked why has so valuable an educational adjunct been overlooked so long?

In the first place, because as a popular fad the great public grew weary of it. In the second place, because as an instrument it was and has remained crude and wanting in adjustments necessary to adapt it to personal comfort. At first there was no adjustment to focal length of eyes. Holmes' instrument remedied that. But the gravest defect, which in my own experience with many individuals has caused its rejection, is the want of an adjustment for varying distance between the eyes of different individuals, and for the varying distances of similar points in commercial stereography or varying width of pictures. Often when persons have been unable to see satisfactorily one stereograph, they could enjoy another simply because the width was less. There are multitudes of simple mechanical movements that will accomplish this adjustment.

Prof. Le Contre Stevens a few years ago put in hands of a prominent photographic firm of world-wide reputation the design for an excellent and cheap one, and it was largely advertised, but because there was not an immediate and large demand they ceased to make it, and I was even unable to procure a specimen for exhibition at a lecture upon the subject before a prominent scientific body. The magnificent stereoscopic views of this exhibition, in spite of the revival of interest in the stereoscope, which will create a large demand, will be closed books to many and scarcely satisfactory to others who might derive great enjoyment from them. The man or the firm that will bring upon the market a first-class stereoscope, with these almost necessary adjustments, at a reasonably advanced price, will prove a benefactor to these persons as well as to educators. To be sure we are not dependent on the instrument; a very little exercise and patience will enable any one to combine, so to speak, the pictures of the ordinary stereograph without instrumental aid, and power to do this is a valuable acquisition which should be encouraged; but many will not take the time and trouble to acquire the power who would enjoy all that the stereoscope affords.

There is another point to which I would allude in this connection, namely, the frauds practiced in

recent years, more especially with the revival of interest in the stereoscope. Twenty years ago, during a visit to Europe, I had less difficulty in getting stereographs of desired subjects than photographs of other sizes. In a recent visit but few were to be had, and those for most part from old negatives. But in several reputable and large establishments where, perhaps, the call had recently been more frequent, I found the larger percentage of stereographs to be formed of duplicates from the same negative, a fact plainly evident, without the stereoscope, and admitted by the dealer when his attention was called to it.

The time I have given to the stereoscope I justify to myself by the feeling that there is nothing that will so expend the applications of photography in personal instruction as the intelligent use of the sterescope as an educational appliance.

But there is a more purely educational phase of this subject. Not many years ago text-book cram was considered a quite satisfactory method of instruction in science, and if to it were added lectures with illustrative experiments, nothing more seemed necessary or possible. In recent years work by the student is recognized as having a value of its own, not only for the acquisition of fruitful knowledge, but of still more fruitful mental discipline, which latter many still contend is the chief end of a liberal education. Whilst it is not necessary to concede that that knowledge which may be useless is best adapted to mental discipline, it can with propriety be claimed that photographic practice, as part of a liberal education, must be judged by the same rule that applies to the other branches; that even if the camera be laid aside, never to be employed again, the discipline involved in practice with it would remain just as truly as that incident to the study of algebra or of trigonometry, to say nothing of the calculus, never employed in after life, or of Latin and Greek, never read or spoken, or even of that practice of music, often so faithfully carried out in early life, only to be entirely laid aside later on. Now, in the early introduction of laboratory practice by the student, it seemed, in the nature of the case, restricted to chemical work, and always attended with liability to run into mechanical methods, by reason of the general uniformity of the processes, as well as the similarity of the phenomena.

Photography presents many features that led me to adopt it as a laboratory exercise many years ago, and to retain it at present in the physical laboratory as a valuable educational means. It is recommended by the wide range and varied character of its operations, from the simple blue print to the highest scientific applications, as well as by the progressive character that may be given to its exercises. In common with many other minor arts, its results are things, not simply facts. They can speak for themselves, and are in the main permanent, can be referred to at any time, and are comparable with subsequent results. Attention can be called by the instructor to their different qualities at different times. It also recommends itself by the severe test it affords at every stage of patience, thoughtfulness, many-sided attention to minute details, promptness in judgment and promptness of response in manipulation, as well as of skill. The work of the tyro, to the experienced instructor, bears the easily recognized ear-marks of neglect, or thoughtlessness, or ignorance, or want of skill at any stage. The learner soon discovers that nature recognizes no conditions as minor or trifling in photography.

It may be objected by some that photography is largely qualitative, but it might be reasonable to inquire whether physical laboratory practice is not made to consist too exclusively of precise measurements. Work may require skill, closeness and precision of observation, and all the qualities developed in the highest degree by quantitative work, and yet not consist in fundamental measurements of lengths, and angles and weights, and time. It may not seem to those, who merely read the advertisements, that photographic practice requires and encourages careful, thoughtful, precise work and skill. But nothing is more deceptive. A few years ago a section of students starting in upon photography appointed a historian. He had a voluminous account, but much of what they had learned was condensed in the motto of the title-page: "It looks easy—try it." Indeed, very little practice renders it a wonder that any perfect negative should run the gauntlet of all the possibilities of failure. The demands upon the average man, too, are rather qualitative than quantitative, for quickness in estimating when the measuring stick cannot be applied. The expert samples wheat without measuring the size of the grains to a fraction of a millimetre, or weighing, though both size and weight enter into his estimate. In same way the quality of fabrics, as well as of wool and cotton is estimated. Even the physician in his diagnosis is qualitative beyond the thermometer With the expert photographer this unconscious judgment that decides a negative to be first-class, before he begins to tell you why, seems almost a matter of feeling. Quality in these cases is the sum of many conditions, and as far as they are quantitative, rapidly *estimated*, not measured. In

an educational photographic course there is, however, some choice of processes. Much that I have said in regard to blue prints may apply here, but for varied and peculiar excellences in this respect, perhaps no process can be compared with the wet collodion process. If it did not exist, it would be advisable to invent it for instruction. It allows the use of comfortable and abundant light, something not to be overestimated in the early practice of photography. The picture lies upon the surface and manifests its qualities rapidly. More processes come under the observation and control of the student, and yet it is more rapid, in that completed results are reached more quickly than with the dry plates. Many experiments thus can be made in a comparatively short time. It is inexpensive, so that there can be no restraint on investigation by any thought of expense. But, perhaps, its chief value lies in the concentration in the briefest interval of time, of all the operations mental and physical that contribute to a perfect result—manipulation, observation, judgment. As you pour the developer upon the exposed p'ate, every fraction of a second may be critical, especially with some kinds of work, as lantern slides. Not only close, quick observation, but prompt decision as to the quality of the picture, and equally prompt response of the hand to the judgment formed, involving skill, are all required. There lie between the perfect result and the barely passable one very few seconds in development. I sometimes feel as if no photographic experience can be complete without familiarity with some such process as this.

Beyond the wet-plate process the photographic horizon widens rapidly in every direction. Of course dry-plate photography should be thoroughly mastered, and will be readily, after the development of the photographic sense and the familiarity with manipulations afforded by the wet process. I would just suggest further that as a *culture study*, as this might aptly be called, the course might be distinguished from a technical study by a wider range—*multa*—should characterize it—*multum* the former—something of many processes the one, a complete technical knowledge of some process the other. The optics of photography should be given due prominence in any course of photography, and the history of photography has the charm of romance as well as high scientific and general interest. It was my pleasure upon one occasion, to hear the eminent chemist, Liebig, who had personal knowledge of the fact, use it very effectively as illustrative of inductive methods. Photography thus seems to have many of the elements of a culture study;—much could be said of its value in a course of liberal education. Much that may have seemed to be impracticable in the consideration of the objective phase of the subject will disappear when such use of photography is supplemented by a laboratory course by students.

LATITUDE IN EXPOSURE AND SPEED OF PLATES.

By F. Hurter, Ph.D., and V. C. Driffield.

(*Continued from page* 457.)

The experiment we have described was made on a plate, the straight part of which only extended from an exposure of about 15 cms. to one of 50 cms. For an ordinary sunlit landscape its latitude of exposure is therefore small, namely, $\frac{50}{15 \times 30} = 1.1$; and consequently, if a correct negative be required on such a plate, the latitude of exposure would have to lie within 10 per cent. of its own value. The negative which was exposed for four seconds is the truest of the three; the one which received one-fifth of this exposure renders the high lights correctly, but not the shadows; and the one which received six times the exposure of the first-named negative renders the gradations as far as white in diffuse light correctly, but not the highest lights. The following table shows the density differences for the various parts of the negatives, which would have to be all alike if the negatives must yield identical prints:

Exposure..	0.8″	4″	24″
Density of clearest spot..	.060	.320	1.025
Density difference—Black in shade and black in sun.....	.060	.210	.265
" " Black in sun and white in shade.....	.500	.830	.790
" " White in shade and white in sun.....	.330	.375	.200
Total range of negative—Black in shade and white in sun.....	.880	1.415	1.255

It will be seen that the negative which received four seconds, the correct exposure, gives for all parts of the subject, with the exception of the highest lights, practically the same density differences as the one which received twenty-four seconds' exposure. In prints from these two negatives all gradations lying between black in shade and white in shade whould be exactly alike, though the exposure was, in the case of one negative, six times as much as in the other. The negatives which received one-fifth the correct exposure only renders the high lights with equal truth; if, however, this negative had been developed tor a longer time than the other two, its range could have been considerably improved; the ratios remaining the same, the density differences would have altered, and it could easily have been brought to the following:

Exposure ..	0.8″	4″	24″
Density of clearest spot ..	.100	.320	1.0 5
Total range of negative—Black in shade and white in sun.....	.100	.210	.265
Density difference—Black in shade and black in sun.....	.830	.830	.790
" " Black in sun and white in shade.....	.530	.375	.200
" " White in shade and white in sun.....	1.460	1.415	1.255

In this case the resulting prints would have differed little from each other, since all the main gradations lying between black in shade and white in shade would have been represented by the differences :

0.8″	4″	24″
0.930	1.040	1.055

which are so nearly alike that the eye could not detect the difference. Only in the highest lights, beyond white in shade, would the difference be at all apparent. The three negatives differ, however, very materially in the time they require to yield prints of equal depth in the shadows. The last of the series (twenty-four seconds' exposure) requires six times and the second (correct exposure) nearly twice ($\frac{5}{3}$) the time which is needed for the first to print to the same depth.

From these experiments it is clear that latitude in exposure is not inherent in modifications of the developer, but in the plate itself, and in the comparatively narrow range of intensities which are ordinarily met with, combined with the inability of the eye to judge of the more or less truthful rendering of the various gradations.

As already pointed out, among the many negatives which may be produced by mere variations in exposure, there is only one which combines truthful rendering of tone with minimum density ; and it is this one which the practical photographer aims to secure. For the more accurate and certain production of this particular negative, it is necessary to ascertain the speed of the plate with tolerable accuracy ; and we now propose to give a short, practical description of the method we have adopted for this purpose. We believe that many amateur photographers would be glad to be in a position to determine speeds for themselves, and to obtain that knowledge of the properties of their plates which can only be derived from a study of the characteristic curve.

The course we pursued in our original investigations was to expose portions of the same plate consecutively to the light of a standard candle, doubling each successive exposure as we proceeded, and we naturally adopted this course when we came to make our first determinations of speed. The errors to which we found the candle liable, however, when we had not the experience in its use which we have since gained, showed that much was to be desired in order to secure a constant ratio of illumination between the different exposures, and in order to secure this, we adopted the plan of making our exposures which we are about to describe, and which we believe to be the most satisfactory. By this method the whole of the exposures are made simultaneously, so that any fluctuations taking place in the light of the candle proportionally affects all the exposures, and the determination is consequently more decisive and less liable to error than if fluctuations in the light were to take place during one or more of the individual exposures. Moreover, the possibility of error arising frem the difficuly of accurately timing very short exposures is wholly eliminated,

We will, in the first place, make a few remarks upon the standard candle as a unit of light. While we candidly admit that the candle is by no means an ideal standard, we must say that we are not at present aware of any satisfactory substitute. We adopted it, in the first instance, because it was ready to our hand, well known and recognized as a standard, and easily obtained. And we may perhaps be forgiven for entertaining a somewhat higher opinion of it than some of our friends, inasmuch as it was, at any rate, reliable enough to lead to the discoveries we have made. It is asserted that the amyl-acetate lamp is a better standard than the candle, but the practical difficulties in its use are such that we can only say it has not proved itself so in our hands. Altogether, we know of nothing, as yet, better as a standard than the candle; and if the suggestions for its use which we are about to make be adopted, we do not think it will lead to serious errors. Two determinations of the inertia of this same plate which we have just had occasion to make on two different evenings, differed only by 0.04 cms., a discrepancy of absolutely no prac ical moment. We have unquestionably found that the standard candles of different makers do vary, and, for this reason, we think it well to say that the candles we have used throughout our investigations were supplied by Messrs. Sugg & Co., Vincent Works, Westminster. The normal height of the flame of these candles, measured from the lowest point at which the wick blackens, is about 45 millimetres.

Our method of using the candle for the purpose of speed determination is as follows. We will assume that the candle we are about to use has been used before. We light it, and then, with scissors, snip off the hardened tip of the wick ; the flame of the candle will now be found to grow steadily in height, and as soon as the distance from the tip of the flame to the lowest point at which the wick blackens has reached 45 millimetres the exposure may commence. The candle flame may now be relied upon to remain sufficiently constant for about ten minues, and this is amply long for our purpose. If, after this time, for any other purpose, the light is required, it will be well to again trim the wick, and start *de novo*. The height of the flame may be measured by a strip of cardboard upon which two marks are made at a distance of 45 millimetres apart.

(To be continued.)

Correspondence.

DARK-ROOMS AT THE WORLD'S FAIR.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Certain parties having a joint interest in a dark-room on the World's Fair Grounds, would have your readers believe that it is the only *authorized* one. Permit me to say, however, that the one entered from my Exhibit, at Post R, 103 Section E, Liberal Arts Building, was erected by written authority, granted to the Blair Camera Co, and myself. The comfort from heat and safe lighting of the room is testified to by the numbers using it in preference to the one standing in the glaring sunlight. All photographers, professional and amateur, are welcome to make use of our dark-room to change their plates and films. Respectfully,

Jno. Carbutt.

The Convention Number of THE PHOTOGRAPHIC TIMES is certainly an interesting one, containing an assortment of articles each one of which is equally good and instructive.—*The Pacific Coast Photographer.*

Notes and News.

The New York Aristotype Company have sent out their "Declaration of Independence."

J. C. Millen, of the Philadelphia Blue Print Company, was in New York last week, in the interest of his excellent blue print paper.

The Convention Number of THE PHOTOGRAPHIC TIMES is a very creditable issue.—*Photographic Adversaria.*

The PHOTOGRAPHIC TIMES is always valuable. The Convention Number is an elaborate and beautiful issue.—*Fremont Journal.*

The Convention Number of THE PHOTOGRAPHIC TIMES was a marvel in its line. This interesting weekly—a leader in current photographic literature—deserves to be read by every one interested in the art.—*Town Talk.*

No Photographer should miss the magnificent exhibition of prize Kloro prints now being held at the salesrooms of the Scovill & Adams Co., who can possibly arrange to see them. They are well worth inspection.

We regret to announce the death of Mrs. L. C. Landy, wife of the well-known photographer at the Museum of Natural History of New York. We extend our deepest sympathy to the afflicted husband.

In our report of the prize winners at the Chicago Convention of the P. A. of A. on page 415 of the August 4th issue, the figure one was omitted in the $1,200 Kloro contest, making it read $200, which was, of course, incorrect.

We recently received a visit from Mr. O. H. Peck, of Minneapolis, who showed us some very fine specimen pictures made upon his Columbian collodion paper. They are soft, rich in depth, and of exceptionally agreeable tones.

For removing yellow stains from bromide prints *L'Amateur Photographer* recommends the immersion for an hour or two in two parts of a saturated solution of oxolate of potash and one part of water acidulated by acetic acid.

Mr. and Mrs. H. Snowden Ward sailed for England Tuesday morning, August 15th, where they will make their home.

Mrs. Ward will be associated with her husband in the conduct of the *Practical Photographer.*

A World's Fair Prize Winners' Exposition will be held at the Grand Central Palace, New York, February and March, 1894. The object of the exposition is to reproduce the most prominent and attractive exhibits at the World's Fair to give New Yorkers who were unable to visit the great Fair a chance of viewing them.

The New York Aristotype Company, of Bloomfield, N. J., have opened a Western office and supply depot at 207 State Street, Chicago, and will thus be enabled hereafter to supply the Western demand for their excellent paper promptly, and always with a fresh article, as they will make shipments from the factory to their Western depot two or three times every week.

A. N. Camp, of Jamestown, N. Y., is a rising photographer. He recently had an illustration in *Wilson's Magazine,* and is supplying the negatives entitled "A Modern Euterpia," which the New York Aristotype Company are using in making their Kalona illustration for the '94 volume of "The American Annual of Photography." We shall have more to say about Mr. Camp.

Mr. G. D. Milburn, of the Photo Materials Co., Rochester, gave a demonstration of the practical workings of Kloro and similar gelatine aristo papers at the experimental rooms of THE PHOTOGRAPHIC TIMES, Monday and Tuesday afternoons, August 21st and 22d, at 3.30 o'clock. Quite a large number of prominent photographers of New York and vicinty were present, and showed their appreciation of Mr. Milburn's instructive demonstration. Mr. Milburn also exhibited three of the prize winning exhibits on Kloro paper at the late Chicago Convention of the P. A. of A. in connection with these demonstrations. These exhibitions of the Kloro prints which won prizes at Chicago may still be seen at the salesrooms of the Scovill & Adams Co. All photographers who can examine them are cordially invited to do so.

The Editorial Table.

We have received the report of the World's Congress Auxiliary of the World's Columbian Exposition devoted to photography, in book form, inoluding most of the papers presented at the recent Congress of Photography at Chicago.

We have already presented our readers with a number of these papers, and will continue the publication of them until all the more interesting and important papers have been presented in our magazine.

The L. & C. Hardtmuth Retouching Pencil has long enjoyed a wide-spread popularity among European professionals, on account of its excellent qualities. It has lately been introduced in this country, and will undoubtedly be received with as wide-spread favor amongst retouchers here. These pencils are made of the best Siberian graphite, and are free from grit in all grades. There are five numbers, No. 1 being the hardest and intended for very fine work. The increasing numbers indicate softness and deeper color. Hardtmuth's pencils are also put up in neat little cases, containing three holders charged with pencils No. 2, 3 and 4 respectively, and six leads of each of these grades in a tiny receptacle. There is also a soft stump to distribute and blend the graphite dust over portions of the negative. The leading professional retouchers of Vienna, Berlin, Munich, Cologne and the other large cities, espeeially of Austria and Germany, use only Hardtmuth's pencils. We can conscientiously recommend them to American retouchers.

Price—Black Lead Refillings, No. 102, per dozen, Round Tubes, $1.50.

Cases containing 3 Tubes of Leads, 3 Holders, with lead in each, and 1 Stump, $15.00 per dozen.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.

2. The camera must be held in the hand during the exposure.

3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.

4. The prints must be mounted but not framed.

5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

Queries and Answers.

115 I. F. STODDARD.—Can you inform me where I can obtain sample of the kallitype paper upon which Mr. Oppenheim writes in THE PHOTOGRAPHIC TIMES?

115 *Answer.*—You gave no address or we would have answered your query direct. Apply to Dr. J. Stebbins, Jr., 114 Pearl Street, City.

116 DOVER, N. H., has purchased a lot of ready-sensitized paper, but finds it blister very badly after removing it to the water after fixing.

116 *Answer*—There are many causes for the blistering of albumen paper and many remedies for it. Acid toning baths and acid fixer promote blistering.

See that the temperature of all the solutions and wash waters is alike.

Blisters are avoided when immersing the prints after fixing in a solution of common table salt.

The best remedy is probably to pass the prints after fixing through alcohol diluted in equal bulk with water.

117 MISS M. E. B., one of our regular correspondents, asks: Who is the authenticated inventor of the camera obscura, Roger Bacon or Baptista Porta?

117 *Answer.*—We answer the question with an abstract from the second volume of "Ausführliches Handbuch der Photographie," by Dr. Jos. M. Eder, who says:

Many historians assert Roger Bacon, a Franciscan monk, invented the camera obscura as early as in the 13th century, but the assertion has never been proved satisfactorily. Cesarino, who in 1521 had caused a commentary to Vitruvius to be written, ascribes the invention to Dom Panuce, a Benedictine monk, which scarcely admits of any doubt. The camera had been described in Leonardo da Vinci's (†1519) unpublished manuscripts, and, as he abstains from claiming the invention for himself, it is quite possible credit is due to Dom Panuce.

Erasmus Reinhold used a camera for observing an eclipse of the sun in 1540, and from these well-authenticated facts we must deduce Jean Baptiste Porta (*1538, †1615) is not the first inventor of the camera. He may possibly have invented it independently, or he may have been informed of it by others; but it is certain in the first edition of his "Magia Naturalis," 1553, Porta describes a camera, but his camera of that time had no lens, and in a later edition (1589) of the same work he speaks of a lens or concave mirror in connection with it.

The cameras of those times were whole rooms, large or small; but the first small and portable camera is described by Robert Hoake in 1617. Marco Antonio Cellio spoke in 1687 of a camera, with the aid of which paintings, prints, charts, etc., can be accurately and easily copied by tracing upon paper the projected image by means of a pencil.

Porta used a plano-convex lens with his camera, and turned its convex side toward the eye of the observer and the plane toward the object seen.

Wallaston introduced the meniscus in 1812.

Daguerre made his first experiments and pictures with a meniscus lens of 3 inches aperture and 12 inches focus, requiring an exposure of 20 minutes. The lenses used by him were made by Chevalier, of Paris, but it was left to Petzval, 1840, and later on to Voizthlaender, to construct objectives for practical use.

Without its most important adjunct, the objective, the camera obscura might have remained in obscurity.

ENTRIES RECEIVED THIS WEEK:

Mignon 1. Mignon 2.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

Issued every Friday.

W. I. LINCOLN ADAMS, Managing Editor.
CHARLES EHRMANN, WALTER E. WOODBURY. } Associate Editors.

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Weekly (illustrated) for one year.....$5 00
" " " six months..... 2 50
" " " three month's trial..... 1 00

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Subscriptions to THE PHOTOGRAPHIC TIMES received by all dealers in photographic materials in this and foreign countries, also by the American News Co. and all its branches.

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Size of advertising pages, 6¼x9¼ inches; outside size, 8½x11¾ inches.
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Quarter page, per insertion..... 8 00
Eighth " " 5 00
Business Notices, not displayed, per line..... 25
Discount for term contracts.

Copy for advertisements must be received at office one week in advance of the day of publication. Advertisers receive a copy of the journal free, to certify the correctness of the insertion.
All literary contributions, correspondence, "Queries," etc., should be addressed to THE EDITOR; all advertising matter to the Publishers,

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
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We solicit your orders.

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DON'T FORGET ME when you are away for the summer. You can send your Kodak, Hawkeye or Kamaret to me packed in a starch box, express collect, and I will develop and print and reload in less than one week. SAMUEL FRANKENHEIM, Practical Photographer, 45 Fulton Street, New York City.

KODAK FOR SALE.—Folding, 5 x 7, new and in perfect order, with Barker Automatic Shutter, Roll-holder, three double plate holders, in sole leather carrying case, and light folding tripod. Will sell for $50; list price, $79. W. E. HOYT, 62 West Ave., Rochester, N. Y.

FOR SALE.—Some sets of Apparatus and Lenses, at very low prices. E. EDWARDS, 137 W. 23d St., N.Y.

FOR SALE AT A SACRIFICE.—Old established photograph gallery; only one in town of 11,000 inhabitants; splendid opportunity; over 4,000 negatives on hand. JAMES F. WALSH, Administrator,
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FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee,
Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

A SELECTED PORTRAIT LENS, made by Dallmeyer, for sale. This lens has done some of the best known work in this country. It was a premium lens, originally costing over two hundred dollars. It can be seen at the warerooms of The Scovill & Adams Co. It goes to the highest bidder. Call for or address "PREMIUM LENS," 423 Broome St., New York City.

ANDRESEN'S PURE SULPHITE, for Amidol, Paraamido-phenol, Rodinal, Eikonogen, or Pyro. Use only Andresen's *Pure* Sulphite of Soda. (See advertisement.)

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PHOTOGRAPHERS who haven't time to make their own Platinotypes should carefully pack their negatives and send them (six 5x7 negatives properly packed in cotton can be mailed) by express. Send for lists.
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"ARISTO LITMUS," the most sensitive Litmus Paper in the world. Sample bottle free to any address upon receipt of 5 cents to prepay postage. (Regular price, 15 cents per bottle. W. P. BUCHANAN,
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C. M. DARLING, 122 West 36th St.

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WE HAVE JUST received another consignment of German Glass Baths. These are *perfect* goods, and admit of the dipper to the very bottom. We offer them at the following prices;

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" 5 x 7	"	.95
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" 9 x 12	"	2.00
" 11 x 14	"	3.50

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In 1 ounce cans,	$0.75
In ¼ lb. "	2.75
In ½ lb. "	5.25
In 1 lb. "	10.00

Amidol Cartridges (making 16 ounces of developer):

In packages of 5	$1.00
" " 10	2.00

If you have not yet tried this developer, send to us for a sample, with full directions for its use.

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No. 5, 10x12 for 6½x 8½ Photographs	$2 00
" 6, 11x14 for 8 x10 "	2 25

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The Local Class of the School closed on May 8.

The Practicing Class will open at the Assembly Grounds on or about July 10, at the old headquarters, corner of Pratt and Centre Avenues.

Tuition fee, for ten lessons, including the use of apparatus and utensils, - - $7 50

Plates, films, chemicals, paper, mounts, etc., will be furnished students at list prices.

For particulars inquire of

CHAS. EHRMANN,
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Employment Offered and Wanted.

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A first-class retoucher wanted. Wright's Studio, Rhinebeck, N. Y.

A retoucher; wages $12; must be a good workman; rapidity not essential. A German preferred. Address W. E. W., PHOTOGRAPHIC TIMES.

A first-class retoucher; situation permanent if satisfactory. Send specimens of retouching when applying, and state what salary expected per week. No reply will be sent to any letter unless specimens accompany it. Address Paul Tralles, 808 Seventh St., N. W., Washington, D. C.

SITUATIONS WANTED.

A situation, or to go into business with a photographer to make enlarged portraits, or would purchase small gallery if cheap; location, New England States preferred. H. D. Jewett, Artist, Potsdam, N. Y.

A good man wishes a position as operator, retoucher or printer. Address "Photographer," 37 Delafield Street, Poughkeepsie, N. Y.

Want for 1st of September a position as operator or head printer; can also do retouching; will give good references and samples of work if desired. Address F. T. King, 237 Granite St., Manchester, N. H.

Position by first-class printer and toner of long experience; well up in the whole routine of photography (retouching excepted). Address G. J. Hooper, 13 Ninth St., Pittsburg, Pa.

A gentleman with considerable experience in the manufacture of Aristotype papers and other photographic specialties, is open for engagement in good position with a reliable firm. Address "K. K. K," THE PHOTOGRAPHIC TIMES OFFICE.

First-class printer and toner wants position; 15 years' experience. Address W. L. Clark, 379 Pearl St., Brooklyn, N. Y.

Young lady wishes a position in a photograph gallery as a first-class colorist, spotter and mounter; also competent to take charge of reception room; can furnish first-class references. Address A. V. B., care D. Garber, 747 Broadway, New York City.

First-class operator and retoucher, competent to take charge of a gallery, will be open for an engagement on September 15th. Address Photographer, P. O. Box 374, Greenport, L. I.

Position as operator and dark-room man; can retouch; long experience in good galleries; east of Cleveland, Ohio, preferred. Address J. W. S., care THE PHOTOGRAPHIC TIMES.

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A LETTER WHICH EXPLAINS ITSELF.

WORLD'S COLUMBIAN EXPOSITION, DEPARTMENT OF PHOTOGRAPHY.

HARLOW D. HIGINBOTHAM, Manager.
C. D. ARNOLD, Official Photographer.
CHICAGO, July 2d, 1893.

THE SCOVILL & ADAMS CO.,
New York, N. Y.

Gentlemen:—I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography, World's Columbian Exposition.

All goods for this work were purchased from the best workshops of the world, with a view of obtaining the best possible results during their use, and of obtaining the largest possible salvage after the Exposition is over. Your apparatus is, in my opinion, the best made.

Very sincerely,
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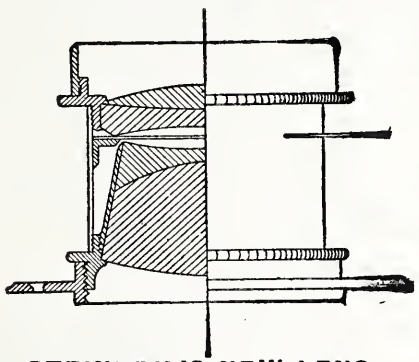
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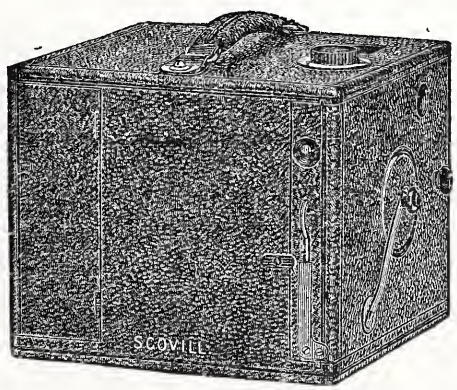
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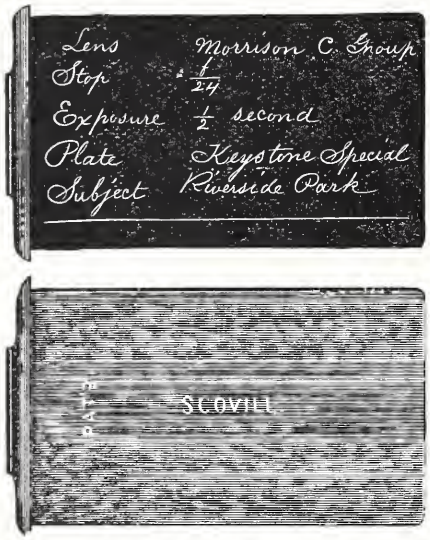
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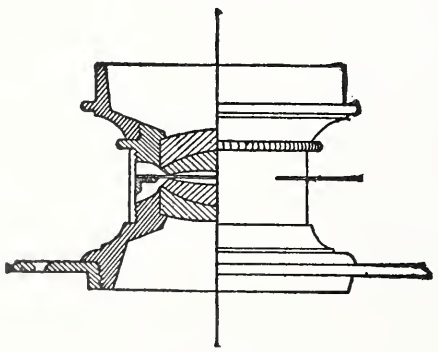
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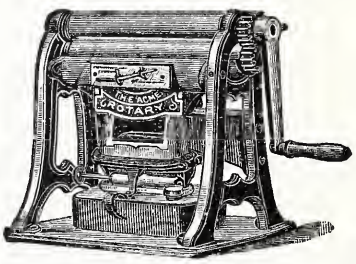
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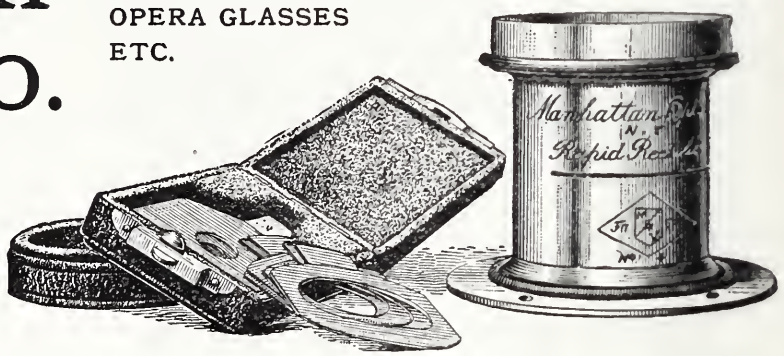
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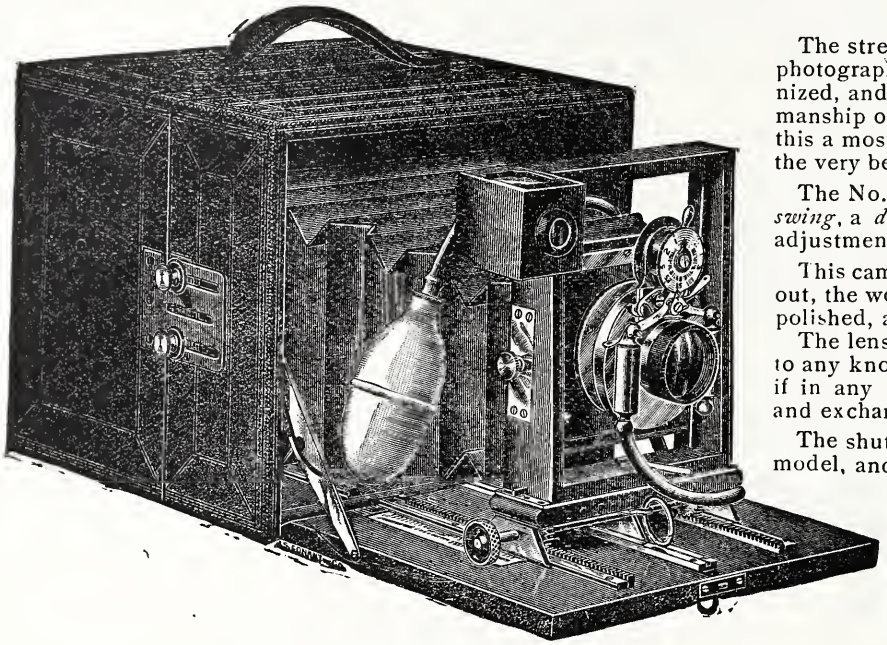
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NOT A FLOUR OR STARCH PASTE, BUT A VEGETABLE GLUE,

Semi-fluid and always ready for use. Its consistency is soft and unctuous and it is absolutely free from lumps or grit. Spreads very smoothly and uniformly, adheres at once and dries quickly. Guaranteed not to warp, cockle, strike through nor injure the tone or color of any mount. Proof to decay, and the water will never separate, leaving the body stiff and hard, as occurs in pastes. Beautiful white color, and never changes. For either dry or wet mountings it is unequaled.

FOR SALE BY THE TRADE GENERALLY.

Prices in Screw-capped Jars: 3 oz, 15 cts.; 6 oz., 25 cts. 14 oz., 50 cts.
Also in one-half gallon and gallon jars. Three-ounce jar by mail, prepaid, 30 cents.

CHAS. M. HIGGINS & CO., SOLE MFRS.,
168-172 EIGHTH STREET, BROOKLYN, N. Y.

FOR SALE BY THE SCOVILL & ADAMS COMPANY.

Remember

THAT

"Three Crown"

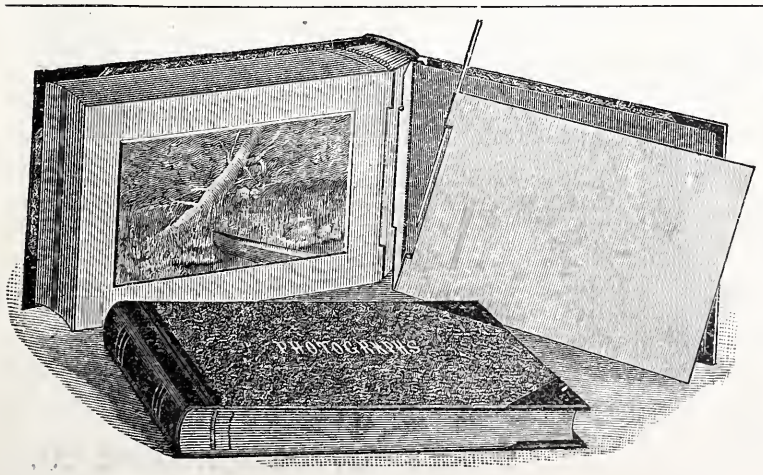
Albumen Paper

Is absolutely the BEST.

WHY?

Because none but the Best of the Rives Paper is selected for Albumenizing the THREE CROWN BRAND.

It is therefore free from the imperfections often to be found in other brands, which arise from imperfections in the plain paper and cannot thus be avoided.



IMPROVED SPRING BACK

ECLIPSE ALBUM.

PRICE LIST.

IMPROVED SPRING BACK WITH TWENTY-FOUR COLLINS CARDS. WHITE AND GRAY.

No. 1	6 x 7	cards		$2 25
No. 2	7 x 10	"		2 50
No. 2½	10 x 7¼	"	upright	3 50
No. 3	10 x 12	"		3 75
No. 3½	12 x 10	"	upright	4 25
No. 4	11 x 14	"		4 25
No. 5	14 x 17	"		7 00

Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

For sale by

THE SCOVILL & ADAMS COMPANY,
423 Broome Street, New York.



EVERYTHING FOR THE CAMERA

SPECIALTIES.

— AGENT FOR —

Ross Lenses

NEW SERIES.
Concentric, Universal Symmetrical, Working in F 5.6.
Wide Angle Symmetrical, and Zeiss Patent Series.

Optimus Lenses,
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Kodak Cameras,
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All brands of Dry Plates, Pure Chemicals and Supplies of all kinds,
All the latest Hand and Tripod Cameras.

Descriptive Catalogues of any of the above sent on receipt of 5 cent stamp for postage.

W. C. CULLEN, 61 William Street, New York.

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Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

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319 Washington St. BOSTON, MASS.

Revised Price-List sent on application.

Correspondence solicited.

The

Columbia Print Roller.



TRADE MARK.

The Columbia Print Roller is a most convenient instrument for the practical photographer, be he professional or amateur.

It is designed to be used in mounting the print, both for removing surplus water before mounting, and for rubbing the print in close contact with the card after it has been laid on. It removes all air bubbles and rolls the print perfectly flat and smooth.

It is a neatly constructed tool, with wooden handle, and heavily covered with rubbers.

Every practical photographer should have one.

Price, 6-inch Roller, - $1

For sale by all dealers in photographic goods, and by the manufacturers,

THE SCOVILL & ADAMS CO.,

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ONLY A VERY FEW SETS LEFT

OF

Photographic Studies.

THE SECOND EDITION.

A Collection of Photogravures from the Best Representative Photographic Negatives by Leading Photographic Artists.

THE COLLECTION INCLUDES:

"Dawn and Sunset"..... H. P. Robinson
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"As Age Steals On"..... J. F. Ryder
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"Solid Comfort"..... John E. Dumont
"Ophelia"..... H. P. Robinson
"No Barrier"..... F. A. Jackson
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"Surf"..... James F. Cowee
"A Horse Race"..... George Barker
"Hi, Mister, may we have some Apples?"..... Geo. B. Wood

Printed on Japan Paper, Mounted on Boards. Size, 11 x 14, in ornamental Portfolio and a Box.

Price, - - - $3.00

Sent, Postpaid, on Receipt of price by

THE SCOVILL & ADAMS CO.

Prosch Manufacturing Co.

Manufacturers to Order of PHOTO SPECIALTIES IN METAL

AND THE WORLD RENOWNED

TRIPLEX SHUTTERS.

Athlete Shutters. Triplex Stereo Shutters.

Magnesium Storage Flash Lamps.

Recommended alike by Amateurs and Professionals as the BEST for steady, hard use on ALL classes of work, from the Gallery to the Race Track. For descriptive circulars, cuts and further information, address

Prosch Manufacturing Company,

389 BROOME STREET, NEW YORK.

Look out
for
imitations
of

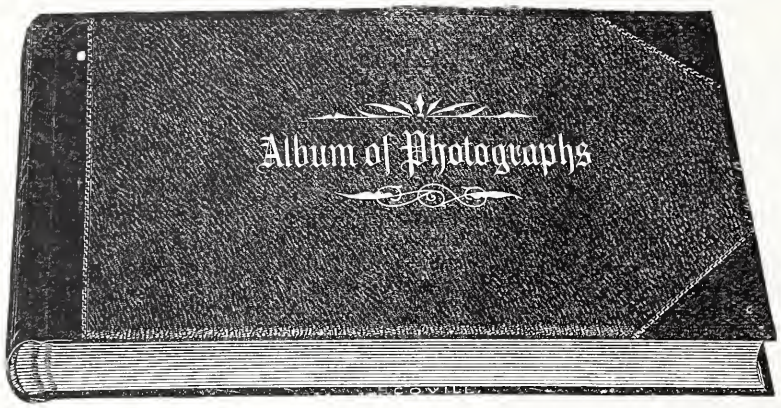
WATERBURY CARDBOARD.



Look out
for the
genuine, too,
and see
that you
get it.

It is
the Best
and Cheapest.

SCOVILL ALBUMS FOR PHOTOGRAPHS.



How often the Amateur Photographer is heard to remark, that as fast as he makes prints from a negative his friends get away with them, and none are left to be treasured up as evidences of his advancement in the art. In order to keep at least one picture from each negative, and to arrange the collection in the best manner for display and preservation, tasteful albums have been introduced by the Scovill Manufacturing Co.

Each Album has 48 pages, 24 leaves. In them the finest cardboard only is used, chemically free from anything that could injure a print.

PRICES:

Size of Card	6x7	7x10	10x12	11x14	14x17
For Photo. (size)	4x5	5x8	6½x8½	8x10	11x14
Plain	$1.25	1.50	2.25	2.50	5.00
With Gilt Lines	1.25	....	....	....	....

PORTE-FEUILLE.

The cards for these Albums may be quickly and securely attached to the guards after the prints are mounted and burnished.

Price List, Including 25 Sheets of Collins' Best Quality White Cards.

No. 2, 10x12 for 6½x 8½ Photographs..... $2 00
" 3, 11x14 for 8 x10 " 2 25

Price List, Including 25 Sheets of Collins' White Muslin-Back Cards.

No. 5, 10x12 for 6½x 8½ Photographs..... $2 00
" 6, 11x14 for 8 x10 " 2 25

The "**Boston Mat**" was designed by Wm. G. Reed, of the Boston Camera Club, for the purpose of simplifying the task of mounting slides, having the openings all *harmonious*, if not uniform, and to enable the maker to so prepare a set that all will "register" when projected.

TESTIMONIALS.

Mr. Wm. G. Reed.

Dear Sir:—Your mat is the "greatest labor-saving invention of the age." Please send me two hundred more.

Mr. Garrison Reed.

Dear Sir:—I have just returned from Japan with several hundred unmounted slides, which I wish to mat with the "Boston Mat." I have told many people of the excellence of your mat, and shall continue to do so, for to me it seems the only sensible one.

Mr. Wm. G. Reed.

Dear Sir:—I have found your ingenious lantern slide mat exceedingly convenient and useful.

The originals of above letters may be seen in our New York Office.

The Boston Mat

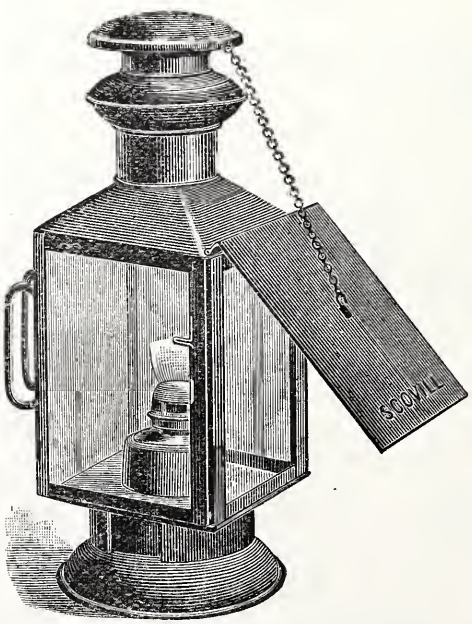
(PRICE FIFTY CENTS PER HUNDRED),

Is for sale by the trade generally. If your local dealer has none, send order to

THE SCOVILL & ADAMS CO.,
SOLE AGENTS,
423 Broome Street, NEW YORK.

THE SCOVILL
PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

CHILDHOOD

A MAGAZINE FOR PARENTS,

EDITED BY DR. GEORGE WILLIAM WINTERBURN,

Is the only magazine in the world of its kind. It contains a mine of interesting knowledge set forth with all the piquant grace of the greatest living authors. Every article is written especially for it by such writers as

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Ten Cents a Number. One Dollar a Year.

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A GREAT CONVENIENCE IN DEVELOPING DRY PLATES.



Pelletone

PYROGALLIC

ACID TABLETS,

Put up in bottles, each containing 100 2-grain (*exactly* 2 grains) tablets of

SCHERING'S

Unrivaled Pyrogallic Acid

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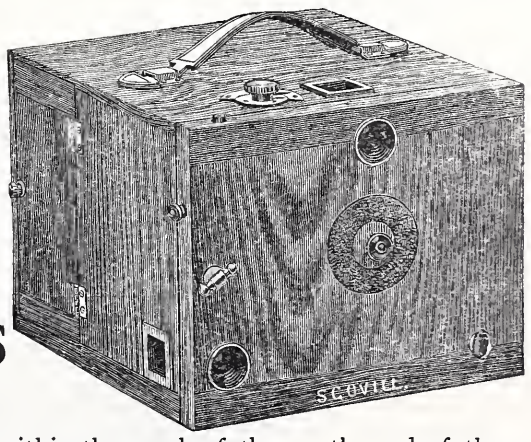
Price per Bottle, reduced to 40 Cents.

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THE SCOVILL & ADAMS CO

IMPROVED KNACK KNACK

DETECTIVE CAMERAS



TO MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the KNACK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1, 4x5 Antique Oak, Knack Camera,	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

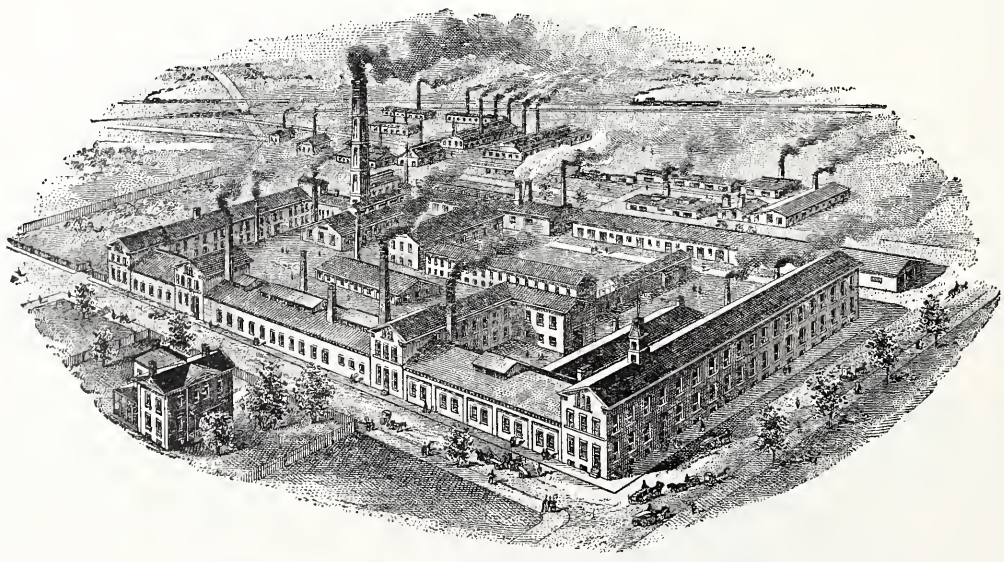
MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

A. M. Collins
Manufacturing Company

would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.



CHAS. COOPER & CO.,
194 Worth Street, NEW YORK,
MANUFACTURING
CHEMISTS and REFINERS
OF PHOTO WASTE.

Works at **NEWARK, N. J.**

NOT IN "THE COMBINE."

USE N. Y. ARISTOTYPE PAPER.

CODE

For Ordering N. Y. ARISTOTYPE PAPER by Telegraph.

SPECIMEN ORDER USING CODE.

Send 50 gross Cabt's Pense, 6 dozen 20 x 24 Pense. and 2 dozen 10 x 12 Pink.
Wire us: "*Express fifty Plaster, six Saddle, two Brake.*"

Size.	Price, per doz.	1 doz. Pense Code Name.	1 doz. Pink Code Name.	Price, per gross.	1 gro. Pense Code Name.	1 gro. Pink. Code Name.
3¼ x 4¼	$ .15	Wheel	Frame	$1.50	Door	Eave.
4 x 5	.20	Head	Wrench	2.00	Window	Tank.
3 x 4 Mantello	.15	Bearing	Rim	1.00	Moulding	Pipe.
3⅞ x 5½ Cabinet	.20	Tangent	Hub	1.70	Plaster	Bath.
4 x 6	.20	Axle	Fire	1.80	Roof	Basin.
5 x 7	.33	Spoke	Cork	3.50	Lath	Casing.
5 x 8	.35	Valve	Rubber	4.00	Siding	Parlor.
5½ x 7¾ Paris Panel	.40	Handle	Nickel	4.00	Board	Library.
6½ x 8½	.60	Bicycle	Pump	6.00	Glass	Dining.
7 x 9	.65	Crank	Cushion	7.00	Hinge	Barn.
8 x 10	.70	Pedal	Guard	8.00	Rafter	Stall.
10 x 12	1.00	Cone	Brake	10.00	Joist	Dirt.
11 x 14	1.30	Chain	Spring	15.00	Stair	Stone.
14 x 17	2.00	Sprocket	Lamp	22.00	Rail	Mortar.
16 x 20	2.75	Enamel	Fork	30.00	Landing	House.
18 x 22	3.50	Gear	Post	40.00	Cellar	Shingle.
20 x 24	4.00	Saddle	Bolt	44.00	Furnace	Banister.
Cabinet Seconds				1.00	Ceiling	Fixture.
4 x 5 "				1.00	Cord	Fastening.

CODE

For Ordering KALONA PAPER by Telegraph.

The BEST and CHEAPEST COLLODION PAPER Made.

SPECIMEN ORDER BY CODE.

Ship 200 gross Cabinets, 50 gross Cabinet Seconds, 10 dozen 20 x 24.
Say: "Express two hundred *Chimney*, fifty *Stamp*, ten *Hall*.

Size.	Price, per doz.	Code Name. 1 doz.	Price, per gross.	Code Name. 1 gross.
3¼ x 4¼	$ .15	Chair	$1.50	Flue.
4 x 5	.20	Desk	2.00	Alcove.
3 x 4 Mantello	.12	Table	1.00	Screen.
3⅞ x 5½ Cabinet	.20	Cloth	1.70	Chimney.
4 x 6	.20	Curtain	1.80	Brick.
5 x 7	.33	Carpet	3.50	Paint.
5 x 8	.35	Stool	4.00	Stove.
5½ x 7¾	.40	Rack	4.00	Trap.
6½ x 8½	.60	Stand	6.00	Slate.
7 x 9	.65	Lounge	7.00	Stain.
8 x 10	.70	Book	8.00	Light.
10 x 12	1.00	Lamp	10.00	Plate.
11 x 14	1.30	Piano	14.00	China.
14 x 17	2.00	Cover	22.00	Shade.
16 x 20	2.75	Radiator	30.00	Cushion.
18 x 22	3.50	Bracket	40.00	Shelf.
20 x 24	4.00	Hall	44.00	Pipe.
Kalona Cabinet Seconds, Kalona 4 x 5 Seconds	For Proofs and Plain Printing		1.00	Stamp.
			1.00	Picture.

A FRESH SUPPLY ALWAYS ON HAND.

THE SCOVILL & ADAMS COMPANY.

The Photographic Appetite increases by what it feeds on. The beginner is usually content to start with a modest outfit, but as interest grows the hunger for more artistic results calls for better facilities so that the apparatus must constantly be of a more improved pattern and contain all the latest fixings, till finally the question of improvement is entirely one of the value of the lens.

The Rattler, $5.

The Waterbury, $25.

The Triad, $35.

The Henry Clay, $55.

Stereoscopic, (Henry Clay) $75.

To suit this growing appetite we make a line of camera boxes unequalled for workmanship and convenient appliances. We can supply any stage of hunger and make to order to suit any whim. Any photographic question cheerfully answered. Send for our Catalogue.

The Scovill & Adams Co.,

423 Broome Street, New York.

World's Columbian Exposition,

Department of Photography.

Harlow D. Higinbotham, Manager.
C. D. Arnold, Official Photographer.

Chicago, July 2nd 93

The Scovill & Adams Co
Newyork

Gentlemen.

I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography World's Columbian Exposition.

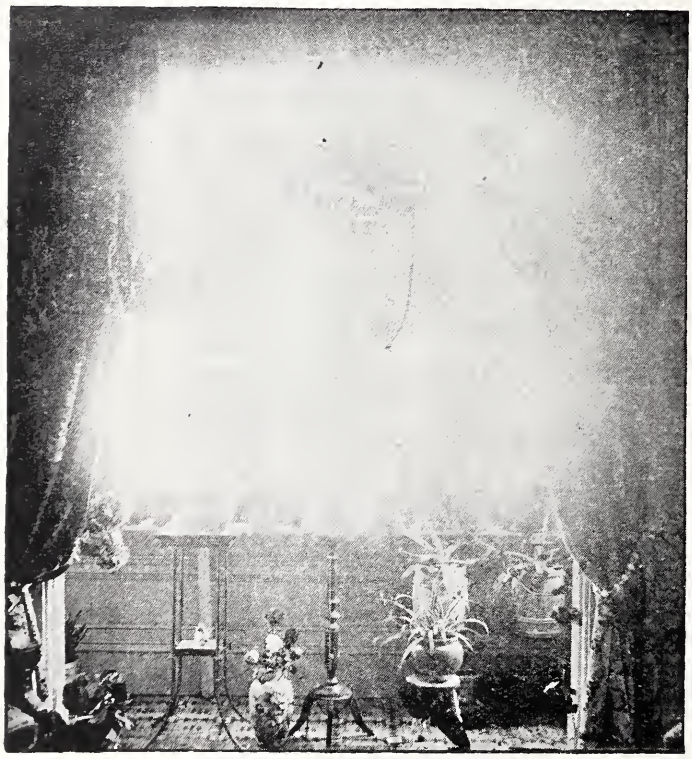
All goods for this work were purchased from the best workshops of the world, with a view of obtaining the best possible results during their use, and of obtaining the largest possible salvage after the Exposition is over. Your apparatus is, in my opinion the best made

Very sincerely
C. D. Arnold

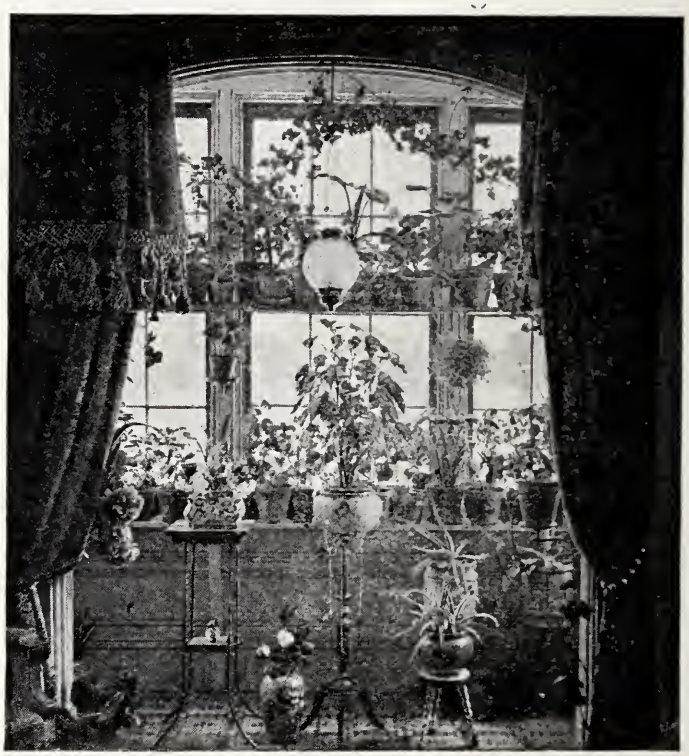
Wuestner's "Imperial Non-Halation" Plates.

LOOK ON

THIS PICTURE and ON THIS!



Reproduced from Negative on ordinary Plate.



Reproduced from Negative on "Imperial Non-Halation" Plate.

Both Negatives Exposed on the same Subject, one immediately after the other.

Note the Contrast!!!

PRICE LIST OF WUESTNER'S "IMPERIAL NON-HALATION" PLATES:

Dozen in Case.	Sizes.	
39	3¼ x 4¼	$0 55
24	4 x 5	80
24	4¼ x 5½	90
28	4¼ x 6½	1 10
22	5 x 7	1 40
22	5 x 8	1 55
12	6½ x 8½	2 10
12	7 x 10	2 70

Dozen in Case.	Sizes.	
12	8 x 10	$3 00
3	10 x 12	4 75
3	11 x 14	6 25
2	14 x 17	11 25
1	16 x 20	15 75
1	17 x 20	16 25
1	18 x 22	19 50
1	20 x 24	23 50

For sale by all dealers in photographic materials.

THE SCOVILL & ADAMS CO., Trade Agents,

423 Broome Street, New York.



Gives Pure Whites Made in Pearl or Pense Gelatine Emulsion

Mr. C. E. HOPKINS, Brooklyn, N. Y. DAYTON, VA., April 18, 1893

Dear Sir:—I have been using your Omega Sensitized Paper for some time, and like it very well.

Yours respectfully, J. S. FISHER.

Mr. C. E. HOPKINS, Brooklyn, N. Y. JACKSONVILLE, FLA., Feb. 23, 1893.

Dear Sir:—The Omega Paper received in due time, and am very much obliged for your promptness. This is the finest paper I have had yet, and will undoubtedly use a large quantity. Yours works finer than any I have ever used, and shall do all I can to push it for you. Yours respectfully,

P. FREMONT ROCKETT.



Omega Cabinet Papers,

$3\frac{7}{8}$ x $5\frac{1}{2}$ inches, $1.75 per gross.

OMEGA TONING SOLUTION,

10 oz., 30 cents, - - - - - 16 oz. 50 cents.

Used Extensively.

A Matt-Surface Paper, having no gelatine used whatever. Prints in the sun until the deep shadows appear; then is developed, washed and fixed. The prints have much the same appearance as Platinum, and the tone can be regulated from a brown to black.

Full instructions come with each package. Prints can be made by the professional or amateur alike without previous instruction. Paper does not deteriorate with age.

C. E. HOPKINS, M'f'r.,

52d and 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Send 25 cents for sample 4 x 5 package of either above papers.

What is the Latest in Photography in the U. S.?

THE CARBON PROCESS IS HELD IN HIGH ESTEEM IN EUROPE, AND THERE IS NO REASON WHY THIS THE MOST PERMANENT, PLEASING and POPULAR

Of the older printing methods should not receive its proper recognition among the Photo. public.

PHOTOGRAPHY IN COLORS

Is now possible by using our TISSUE, and being a new process to the general public, we have full confidence that the fraternity will soon see its advantage in increasing their trade.

ALL OF OUR TISSUE is packed in a manner which will fully preserve it for years; it is of a smooth, even texture, and will not crack.

It is equally acceptable to the amateur as well as the professional.

We furnish full directions, fully describing the developing and transferring process, making it especially plain. It will be of interest to photographers, however, who care to examine into the merits of carbon, to call upon us and an experienced man will give full explanation and instructions, if its adoption is intended.

UPON RECEIPT OF TWENTY-FIVE CENTS we will send sample photo. in any color desired, with descriptive circular and detailed price list.

THE PHOTO. SUPPLY M'F'G. CO.,

52d to 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Our Declaration of Independence.

WHEN in the course of photographic events it becomes necessary for one manufacturer to take a separate and distinct position among other manufacturers in the trade, by reason of a certain combination, trust or agreement between these firms to control the price and terms of sale of photographic printing-out papers in these United States, it becomes necessary and important to photographers that they should know that we are not a party to, nor in accord with, any such compact and we hereby declare ourselves to be FREE AND INDEPENDENT of it.

If, therefore, you have been using our N. Y. Aristotype Paper (gelatine), or our Kalona Paper (collodion), the price of both being $1.70 per gross, cabinet size, and find that your orders for either of these papers are being filled with an article that costs you $2.00 per gross, you may feel assured that your dealer is in sympathy and acting with this arrangement of trying to force you to pay this price for your Aristotype Paper.

Will you consent to such an outrage and have this trust dictate what paper you shall use?

The following is a verbatim copy from a circular sent by some of the members of this combination to the photographic trade:

"No discounts will be allowed to dealers who either sell our paper or any other emulsion printing-out paper at less than the list prices above mentioned; or who handles any such paper sold by its manufacturers at less net prices than above mentioned."

(The list price above referred to is $2.00 per gross Cabinets, etc.)

If your dealer writes you when you order N. Y. Aristotype Paper or Kalona that he doesn't keep it, or can't get it, or give some other vague or indifferent reason for not having it, send us your name and address and we will tell you where you can procure it, or we will supply you direct.

In order to better supply the constantly increasing demand for our papers, and other specialties and to be able to fill orders more promptly for Western dealers and photographers generally, we have opened a branch office and supply depot for the Western trade at 207 State Street, Chicago, Ill. A full and complete line of all our products will be carried there. The stock will be absolutely fresh, shipments being made from the factory two and three times each week. From four to five days' time can be saved the Western trade by ordering from our Chicago office.

If you have not being using our Papers, we feel sure that there is a want in your work that has not been supplied. It is for a paper that is uniform and reliable and that will under ordinary intelligent manipulation give you fine permanent pictures. We make both kinds of papers, collodion and gelatine, and we are the only manufacturers in the country that do so. Let us know what kind of paper you are using and we will be pleased to send you a sample of a similar paper that will give you superior results and WILL COST YOU LESS MONEY.

Remember our papers and products are not controlled by any agreement, compact or trust (so-called) of manufacturers, or by any photographic stock house.

WE ARE FREE AND INDEPENDENT.

NEW YORK ARISTOTYPE CO.,

Western Office and Supply Depot:
207 STATE STREET,
CHICAGO, ILL.

Main Office and Factory:
BLOOMFIELD,
NEW JERSEY.

KLORO IS THE BEST!

The prizes in the $1200 Kloro contest for the best pictures at the Photographers' Convention, recently held in Chicago, were awarded as follows:

CLASS A.—1st Prize,		**$500.**	**Resch, St. Louis, Mo.**
	2d "	**$150.**	**S. L. Stein, Milwaukee, Wis.**
	3d "	**$100.**	**Scott, Chicago, Ills.**
CLASS B.—1st Prize,		**$150.**	**Cornell & Saunders, Rochester, N. Y.**
	2d "	**$75.**	**Root, Chicago, Ills.**
	3d "	**$50.**	**Uhlman, St. Joseph, Mo.**
CLASS C.—1st Prize,		**$100.**	**Stimson, Appleton, Wis.**
	2d "	**$50.**	**H. Levin, Chicago, Ills.**
	3d "	**$25.**	**Hatton, Evansville, Ind.**

THEY ALL USE IT, WHICH THE FOLLOWING LETTERS WILL SHOW:

S. W. PERRY & Co.,
Photographic Outfits and Supplies,
BEREA, OHIO.

BEREA, OHIO, July 11, 1893.

The Photo Materials Co., Rochester, N. Y.

GENTLEMEN:— * * * * * * * * * * * * * * *

We divided up the gross of Kloro and gave it out to the different photographers here, and to several amateurs. The results, so far as they have been observed, are excellent. We believe you have the best paper on the market.

About the first of August we shall put in a stock of Kloro and sell it regularly. We have completed arrangements with one of the leading photographers to use it exclusively.

* * * * * * * * * * * * * * * * * * * *

Truly yours,
S. W. PERRY & CO.

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IN THE COUNTRY

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. SEPTEMBER 1, 1893. No. 624.

IN THE COUNTRY.

OUR picture this week is from a negative by Mr. D. W. Carter, President of the Worcester Camera Club. It was photographed in the town of Wells, Vt., during a summer vacation, and was a specially difficult subject because of the large butternut tree which overhangs the entire foreground. But Mr. Carter has succeeded in giving us a very pleasing view of a most attractive subject. The negative was made on a Cramer "40" plate and developed with a simple hydro developer. The exposure was one second at about one o'clock on a July day, *f*/32 stop being employed.

PHOTOGRAPHIC USES OF PICRIC ACID.

IN the forthcoming number of "The American Annual of Photography and Photographic Times" will be found among a host of interesting matter an instructive article by Prof. W. K. Burton upon the uses of picric acid in photography as a preventative of halation. Since writing this article we have received a further communication from Professor Burton, in which he says:

I mentioned that some experiments had been made with picric acid (or picrate of ammonium) as a coloring medium for dark-room lamps. I have now to report that I find that, if glass is properly prepared, a "picric yellow" is, when visually of the same intensity, fully as safe as light filtered through red stained glass that has been most carefully selected by the aid of the spectroscope from a large stock.

The "picrated glass" is prepared in the following way:

A cold saturated solution of picric acid is made, and ammonia is added drop by drop till the solution has an ammoniacal smell.

To this solution is added enough gelatine to make a liquid that will "set." The exact quantity of gelatine is of no great importance. To every ounce of the solution there may be added 10 grains of hard gelatine in winter, 20 to 25 in summer. When the gelatine has swelled, heat is applied to melt it, and the solution is filtered through cambric.

Glass plates are cleaned, a lump of wax or of solid paraffine is run round the edges and the plates are leveled. A considerable quantity of the solution is now poured into the middle of a plate and is guided over the whole surface by the aid of a glass rod, till an even film results. The quantity of solution used should be from 8 to 10 ounces per square foot of glass. It is just possible to get 12 ounces of solution on a plate, but it needs great care. If the solution "falls over" the edge of the plate at any place, nearly the whole of it drains away.

The plates may be reared on edge to dry whenever the gelatine has set. When dry they are used for glazing lanterns for the dark-room. If a diffused light is wanted, the unground side of ground glass may be coated, or a sheet of white tissue paper may be used in combination with the "picric-yellow" glass.

So slight is the color of the light got by the use of such glass that, although it is distinctly yellow in direct comparison with the light from an open gas or lamp-flame, it seems, after one has been working for some time in a room lighted with picrate light, as if the illumination were that of common gas or lamp-light.

This light will be found of great use in enlarging rooms and any other spacious rooms in which work with sensitive films is carried on, enabling one to work with perfect comfort, every corner of the room being comparatively brightly lighted.

Of course this light must not be used with orthochromatic plates.

I have made no experiments with daylight filtered through picrated glass.

A word as to the means of deciding the comparative *visual* powers of two lights. This is done by finding the greatest distance from each at which it is possible to read print—the same size of print being used in each case of course. The intensity of the light is then taken on differing as the squares of the distances between the light and the printed page. It is wonderful how fairly exact this method is. Even at a distance of a good many feet from a light there are only a very few inches through which there can be any doubt as to whether one can or cannot read, and the results of different observers (all having normal color sights, of course), are wonderfully uniform.

The law of the square of the distances cannot be taken as holding for lights with diffusing media, unless the lights be made so strong that the test distance is comparatively great, when it may be held practically to hold good, but the distance measured is, in this case to be measured from the diffusing medium, not from the lamp flame.

Various precautions, such as the checking of the results of one observer by those of another, will suggest themselves to those who are at all accustomed to experimental work.

The relative intensities of the lights being ascertained, the next thing is to discover their relative safeties, using the same quantity of visual light. This *may* be done by exposing (under the sensitometer) ten plates from the same box, at the same distance from the two lights, giving exposures inversely as the intensities of the light, but various possibilities of error are avoided by giving the *same* exposures at the actual maximum distances from the light at which it was found possible to read the test print.

We have to thank Mr. W. E. Debenham chiefly, or entirely, for overthrowing the absurdity of leaving altogether out of consideration the visual intensity of the light when considering the illumination of the dark-room, and of stating that only the light of that part of the *solar* spectrum which least affects the plate must be used. Quite recently this absurdity has been gravely restated by one of the highest authorities in photographic matters in Germany. I wonder this gentleman cannot see that, to be logical, he should recommend the use of *ultra*-red light only, when he would have a "dark" room indeed.

The outcome of Mr. Debenham's experiments was the adoption of a "cathedral green" glass. The color transmitted I should describe as a "yellow-green," whereas the color transmitted by picrate I should describe as a "green-yellow."

I am not prepared to state which color is the safer, but the picrate color is certainly the pleasanter. It is even pleasanter than "canary medium" color.

The picrate color is one that, from purely theoretical considerations, one would expect to be a safe one, for the absorption curve corresponds almost exactly with the curve of sensitiveness of gelatino bromides, and, with fairly thick film, absorption is *complete* at the point of maximum sensitiveness.

A PHOTOGRAPHER-ASTRONOMER.

IN "*Harper's Monthly* for September appears a highly interesting biographical paper on Professor Edward Emerson Barnard of the Lick Observatory, by S. W. Burnham, a former Associate of Professor Barnard at the Lick Observatory on Mount Hamilton.

Professor Barnard commenced his career as a photographer. "Fatherless and destitute at the close of the war, he began at the age of eight or nine to work in a large photographic studio in Nashville," writes Mr. Burnham, "and continued to follow the occupation of photographer until 1883. During this time he had mastered every department of the photographic art, and had become invaluable to his employers as a faithful and accomplished assistant.

"From an early age he had been interested in optical matters, and this interest was increased by the use of the various lenses employed in the gallery. In 1876 a friend happened to leave in the young photographer's possession for a few days an old book, which he was delighted to find was a copy of Dr. Thomas Dick's *Practical Astronomer*. This book was studied with great avidity, and had awakened a thirst for astronomical knowledge which has never since ceased to be controlling."

Young Barnard shortly obtained a small telescope for himself, and commenced to make his observations, especially of the planet Jupiter. He early distinguished himself by the discovery of comets, and contributed many valuable papers on the results of his observations to the astronomical literature of the time.

"In 1883" continues the narrative, "he left the photographic business, having received a Fellowship in Astronomy at the Vanderbilt University. During the preceding years he had given all his spare time to study, working in the daytime, and studying alone at night, and had acquired a good education in the ordinary branches of knowledge. He was promptly placed in charge of the observatory attached to the Vanderbilt University, and

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continued his researches. * * * While connected with the observatory he took in the University a thorough course in English, French, German, mathematics and physics, and graduated from the school of mathematics in 1887. (His early education was limited to two months' attendance at the common school, as Professor Burnham states at the beginning of his paper, and such instruction as his excellent mother could give him at home.)

In 1888 he was offered a position in the Lick Observatory, then about to be opened with the largest equatorial, and the best equipment of astronomical instruments in the world. He accepted this position, and has continued to work at Mount Hamilton with the greatest success since. He has discovered many comets, and continued his observations of Jupiter.

His great discovery—the fifth moon of Jupiter—was made Friday, September 9, 1892, about midnight. He at once communicated the important news to his friend and biographer, who was then at Chicago, and by the following Monday, as Mr. Burnham writes, "the whole astronomical world was electrified that Jupiter, observed more than any other planet for the past three hundred years, had a fifth moon, revolving about it in less than twelve hours, at a distance from the planet of about 70,000 miles."

On the night of October 12th Professor Barnard discovered a new comet by photography. He has also made the best photographs of the Milky Way, one of which was reproduced in THE PHOTOGRAPHIC TIMES many months ago. His knowledge of photography has been of great assistance in his astronomical work, and the comet of October 12th was the first comet discovered by photography. "Singularly enough," writes Mr. Burnham, "the comet has been found to be of more than ordinary importance, as it has been shown to be periodic, its revolutions around the sun being accomplished in about six years."

Professor Barnard is at present enjoying a well-earned vacation of six months, visiting the larger observatories of the Old World. He has been a Fellow of the Royal Astronomical Society of London since 1887. Last January he received the largest recognition of the French Academy of Science of the Lalande gold medal.



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EDWARD EMERSON BARNARD.

The article referred to is embellished by several reproductions from Professor Burnham's own negatives, taken on and about Mount Hamilton, and an excellent portrait of Professor Barnard, which we reproduce for the benefit of our readers. The entire article is interesting reading, especially to photographers. It tells the story of what perseverance, industry and ambition can accomplish in a photographer's boy unaided save by natural talent.

EDITORIAL NOTES.

IN these bad times it is a pleasure to find some one who has a superfluous amount of cash—and a photographer too! Passing down a street in Buffalo the other day we caught sight of a notice placed over a show case, and "Money to Loan" was the legend described thereon.

THE photographic societies of France intend to erect another monument to the memory of Daguerre at Bry-sur-Marm, the place where he spent the last years of his life.

PAUL SALA, of the Society of Amateur of Photographers of New York, who has just returned from the World's Fair, states that the photographic privilege for a week can be obtained on payment of $6.00, and for a month on payment of $15.00. The daily charge remains the same as heretofore, viz., $2.00.

ROSE BENGAL A COLOR SENSITIZER.—Captain von Hübl has found color values reproduced by the aid of eoside of silver not as correct as desirable. Green invariably appears too light and red too dark; a great fault in the reproduction of paintings. We are well aware that cyanine does away with that evil, but it is a very difficult substance to deal with.

A substance not possessing these faults should be capable of sensitizing well for the spectrum yellow, and be therefore of violet color, and if possible belonging to the halogen derivatives of resorcinphtaleïn, for it appears all the bodies of that group are most easily managed. Captain von Hübl has found a dye answering to all these demands in a sort of rose bengal, a tetra-dichlor-fluorescein. Of all dyes of the eosine group rose bengal is the most blue-shaded ; it dissolves in alcohol with bluish-red color and its silver combination is violet. It sensitizes collodion emulsion bath plates as powerfully for yellow as yellow-shaded eosine (tetra-bromo-fluorescein) sensitizes for green.

If it is desirable to depress green sensitiveness still more, the plate should be passed through a bath of yellow-shaded eosine.

MAKING NITRATE OF SILVER.

WHEN I was a little boy I remember creeping silently and sadly up to my room and weeping bitter tears at the loss of my only valuable possession, my silver spoon, presented, according to the English custom, by my godfather. This article had been cruelly confiscated by my father, an ardent photographer, in order to make nitrate of silver, he having run out of that material and the cash to buy it with, too, I suspected. However, I also have a distinct recollection of my secret joy when I learned that the attempt was a failure. True, I never saw the spoon again, but I felt somehow I had been secretly avenged.

I have often made nitrate of silver myself since, but have never taken my son's silver spoon—true he hasn't got one; but I have many times converted a coin or an old bit of useless silver plate into the nitrate for photographic purposes.

I have thought it possible that other photographers may have some old silver lying about and not know how to utilize it by converting it into the nitrate and using it for sensitizing the paper.

First clean the silver, place it in a flask and add nitric acid to it by degrees until it is all dissolved ; when nearly dissolved warm the compound rather than add more acid.

When dissolved the silver is converted into nitrate, but this is not pure enough for photographic purposes, as nearly all silver goods contain alloys, principally copper.

Dilute the solution by adding three or four times its volume of water, and pour it into a large, clean jug, add to this hydrochloric acid or a solution of common salt. Immediately a white flaky precipitate (silver chloride) will be formed. The acid, or salt solution, is slowly added until no more silver chloride is produced, then allow it to stand until this has all settled to the bottom. Add a few more drops of the chloride solution to be sure that all the silver has been converted, then pour away as much of the liquid as possible without disturbing the white precipitate at the bottom. The liquid is thrown away, as it contains no silver, only the copper and other impurities. The jug is then filled up with clean water, the silver chloride allowed to re-settle, and the water poured off again. This is termed washing the precipitate, and is repeated several times; after this as much of the water is drained off as possible, and sufficient dilute sulphuric acid poured over the chloride as to cover it. On the top of the mixture is next floated a piece of clean sheet zinc, and the whole is allowed to remain perfectly quiet in a warm place for a day or two. All the silver chloride will then have been decomposed, the chloride has gone over to the zinc, leaving the pure metallic silver deposited at the bottom of the jar in the form of a fine black powder, which is well washed to remove all traces of the acid.

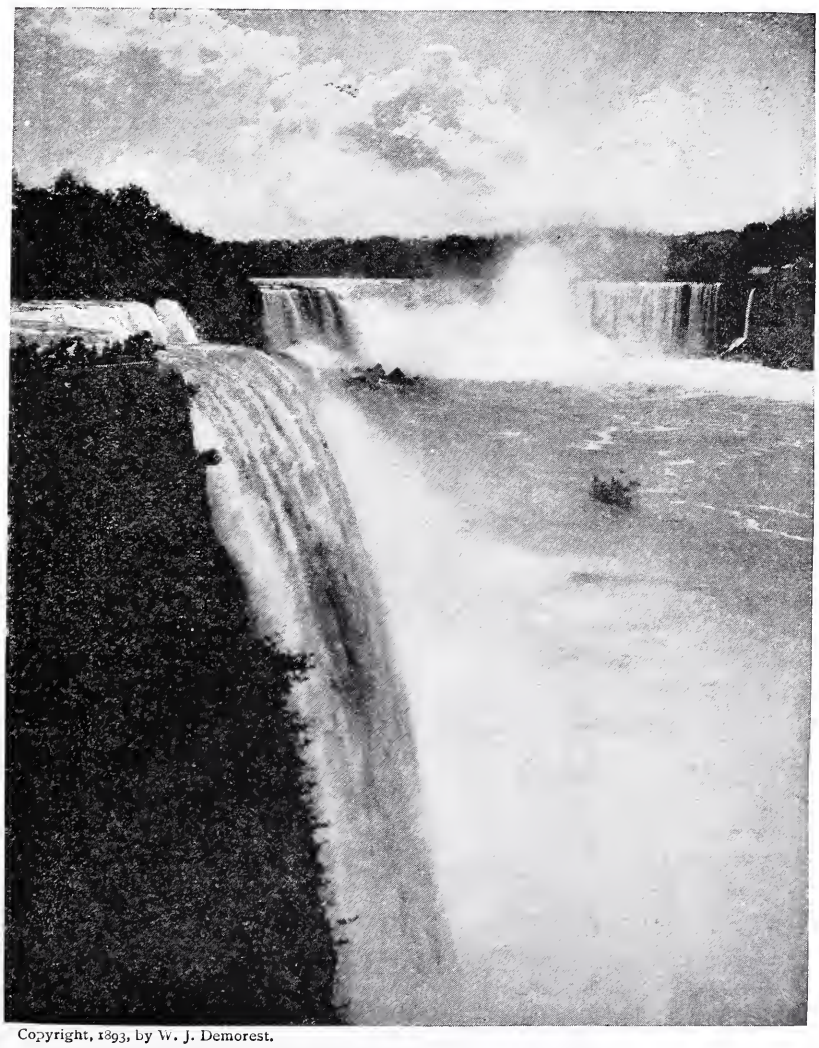
After washing just sufficient diluted nitric acid is added as will dissolve it. Six ounces of silver require from 4 to 5 ounces of strong nitric acid diluted with about 10 ounces of water. The solution is then evaporated to dryness, and the residue heated. We now have pure nitrate of silver, but if it is preferred to have it in the form of crystals it is only necessary to dissolve it in a very little hot water. On cooling the silver nitrate separates in the crystallic form.

Max Madder.

AT NIAGARA WITH A CAMERA.

NIAGARA has been termed, and aptly too, "Nature's Masterpiece." So much has been written upon its glorious beauties that we do not intend to add very much more than will be of interest to photographers. Almost everyone who has been there has at some time or other endeavored to express their feelings in print, but in our opinion this can never be done. There is something supremely awful in the contemplation of this triumph of nature's handiwork far beyond the power of man to describe.

Perhaps the finest attempt to describe the grandeur of Niagara is that by Sir Edwin Arnold, when he says: "Thundering, smoking, glittering, with green and white rollers and rapids, hurling the waters of a whole continent in splendor and speed over the sharp ledge of the long, brown rock by which Erie—the Broad—steps proudly down to Ontario—the Beautiful. Close at hand on our left—not indeed further than some six or seven hundred yards—the smaller, but very imposing, American Falls speaks with the louder voice of the two, because its coiling spirals of twisted and furious flood crush in full impulse of descent upon the talus of massive bowlders heaped up at its foot. The resounding impact of water on the rock, the clouds of water-smoke which rise high in air while the river below is churned into a whirling cream of eddy and surge and backwater, unite a composite effect at once magnificent and bewildering. But if you listen attentively, you will always hear the profound diapason of the great Fall—that surnamed the Horseshoe—sounding superbly amid the loudest clamor and tumult of the sister, a deeper and grander note; and whenever for a time your gaze rests with inexhaustible wonder upon that fierce and tumultuary American Fall, this mightier and still more marvelous Horseshoe steals its way again with irresistible fascination. Full in front lies that wholly indescribable spectacle at this instant. Its solemn voice—an octave lower than the excited, leaping, almost angry, cry of fervid life from the lesser cataract — resounds through the golden summer morning air like the distant roar from the streets of fifty Londons, all in full activity.



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GENERAL VIEW OF AMERICAN AND HORSESHOE FALLS.

"Far away, between the dark gray trees of Goat Island and the woods of the Canadian shore, Niagara River is seen winding eagerly to its prodigious leap. You can discover, even from this balcony, the line of the first breakers, where the river feels, across its whole breadth, the fatal draw of the cataracts, where its current seems suddenly to leap forward, stimulated by a mad desire, a hidden spell, a dreadful and irresistible doom. You can note far back, along the gilded surface of the upper stream, how these lines of dancing, tossing, eager, anxious, and fate-impelling breakers and billows multiply their white ranks and spread and close together their leaping ridges into a wild chaos of racing waves as the brink is approached, and there, at the brink, there is a curious pause; the momentary peace of the irrevocable. Those mad upper waters—reaching the great leap—are suddenly all

quiet and glassy, and rounded and green as the border of a field of rye, while they turn the angles

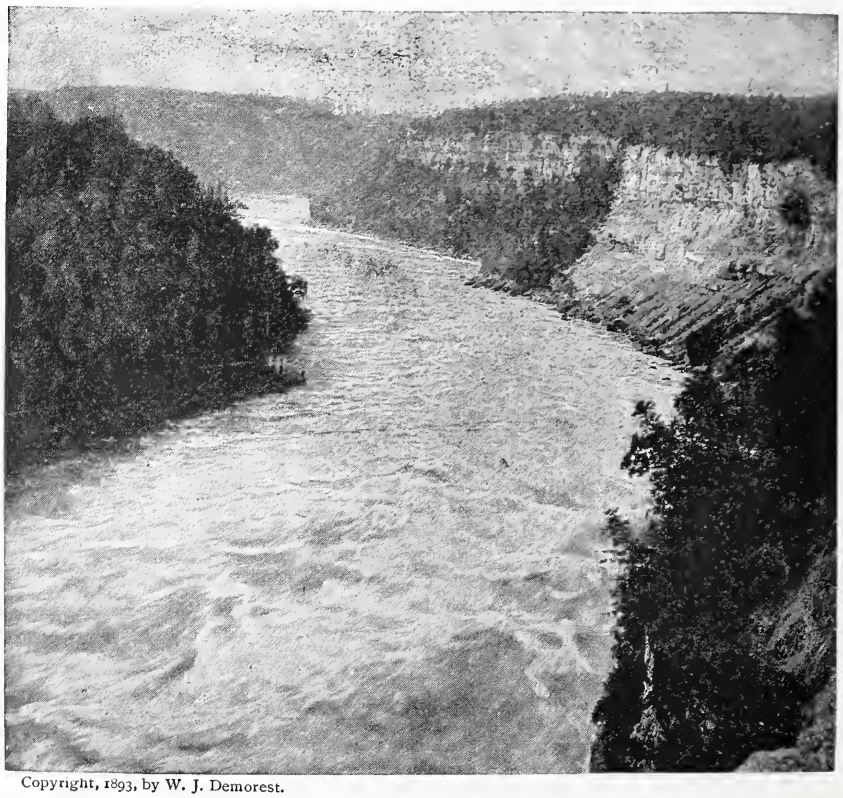


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ENTRANCE TO CAVE OF THE WINDS.

of the dreadful ledge and hurl themselves into the snow-white gulf of noise, and mist, and mystery underneath."

The journey to Niagara by the New York Central and Hudson River Railroad is a pleasure. Away from New York we soon get alongside the picturesque river. It is greatly to be regretted, however, that there is no law preventing the advertiser from disfiguring some of the most beautiful bits of scenery by hideous advertisements of quack medicines, etc. Such individuals should be made to gaze upon their unsightly work for the remainder of their lives, and to exist only on their unsavory productions, but then the punishment would be too good for them. A ride of some thirteen or fourteen hours brought us to the village of Niagara Falls. The Cataract House became our residence for the time being, and we can thoroughly recommend the service and accommodation. The charges are not high, considering that everything is on a more costly scale than in most towns. Niagara has unfortunately a bad name for extortion and robbery. In earlier days, we are told, this used to be very bad, but the commissioners have done very much in this respect of late, reducing the tariff and preventing visitors from being fleeced. A two-horse four-wheel carriage can now be obtained for five dollars for a journey of about four hours. By making a party of four the charge does not come very heavy per person, and in this way all the points of interest can be visited, the driver, acting as a guide, explaining the localities and discoursing upon the hair-breadth escapes and blood-curdling accidents by which the great waters swallowed up another of its victims. An accident happened on one of the days we were there. A foolish man, apparently the worse for refreshment, attempted to attach his boat to a steamer. His foot slipped, however, and he was carried away over the seething cataracts, away over the falls, where in all probability his body would be dashed to pieces. Of course the place where Captain Webb lost his life was pointed out, and many had theories of their own how he could easily have accomplished



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THE WHIRLPOOL RAPIDS.

his task if only he had done so and so. When we suggested to one of these individuals that he should

make the attempt, he turned pale and was not apparently very much struck with the idea.

A charge of twenty-five cents is made to view most of the important places, also to cross the suspension bridge to the Canadian side. Here an official suspiciously eyed our camera as being a convenient receptacle for smuggled goods but said nothing, possibly too used to the sight of photographic apparatus.

Indeed, cameras can be seen here, there and everywhere. Henry Clays, Triads, Kodaks, etc.; cameras of all kinds, from the small toy camera to the 20 x 24. At length we became quite worried that there was not a spot left for us to take a view from that had not been taken before. This led to suicidal attempts to gain a dangerous position to make a view from, and we had serious thoughts of being let down by a rope from the suspension bridge, and so make a possibly unique picture of the Falls from mid-air.



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READY FOR THE CAVE OF THE WINDS.

It very soon became evident to us that it is only at certain periods that photography at the Falls themselves will give successful results. A professional told me this had been one of the worst years for the purpose. The wind always blows the spray in a wrong direction when other conditions were favorable.

At first glimpse of the mighty Falls one can easily understand the feelings of the would-be poet when on first viewing the mighty torrent of water pouring over at the rate of millions of cubic feet, the spray and mist rising up rendering the depth imperceptible, all he could say was

"Niagara! Niagara!
Great Scott! you're a staggerer!"

The early riser gets the best view of the Falls, at that time the rainbow and wonderful prismatic effects in the spray are visible.

Round and about the Cataracts, Three Sisters Islands, Luna Islands and other parts a thousand pretty views can be obtained.

After dressing up in a nor'wester we passed into the Cave of the Winds and behind the central Fall. The experience is a novel one and well worth the time.

The amount of photographs sold at Niagara must be surprising. Almost every store contains a number of specimens. Transparencies are also largely disposed of, and when nicely made and mounted form very pretty ornaments. We are told, however, that the trade is now cut down to the lowest stage; direct photographs, 20 x 24 inches, mounted on good card are sold to the dealers for 50 cents apiece. We should hardly imagine it possible to make them for the money.

Exposure is a matter of very serious calculation. The brilliant white foam and spray offers a very formidable contrast to the dark heavy foliage of the trees. There is a line to be drawn in between that must be aimed at. We are told that a very good plan is to make two or three very rapid exposures, keeping the camera in the same place. By this means the trees have been allowed sufficient tone without the rushing water appearing blurred.



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THE THREE SISTERS ISLANDS.

Niagara is beautiful enough in summer, but we are told it is still more picturesque in the winter, the trees and bushes draped in frozen spray, the huge icicles and the curious crystallic formations form an unendless variety of pictures.

Indeed, to give some idea of the value of this place, from a photographer's point of view, we can only say that one might live a whole lifetime there



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TREES DRAPED WITH FROZEN SPRAY.

and see fresh beauties and fresh pictures every day of his existence. The whole neighborhood abounds in pretty spots, and short excursions to neighboring districts will bring the photographer to many more. No one with a camera should miss Niagara. To get a good view of the Falls it would, perhaps, be necessary to wait months for a day when all conditions were suitable. Naturally the resident professional gets the best chance, and views are so common and so cheap that we at least considered it far better to purchase these and content ourselves with the picturesque beauties of the cataracts, islands, and other charming scenes.

Walter E. Woodbury.

A CONTEMPORARY, writing of the recent P. A. of A. Convention, says: "In its work and influence it has probably been the most notable convention ever held in this country."

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 469.)

PART II.

THE MANIPULATION OF THE PAPER.

CHAPTER VIII.

WASHING AND HARDENING THE PRINTS.

As the permanency of the prints is to a certain extent dependent upon the thoroughness of the washing, after toning and fixing, it is important that this process be carried out properly.

There are many who think that thoroughly washing a print means leaving it in water for twelve or twenty-four hours. This is all very well if in a running stream, but absolutely useless unless the water be changed as often as possible.

If this be done but a few hours, two or three at most are required. With gelatine prints rapid and thorough washing are desirable for the reason that gelatine when kept in a moist state for any length of time will commence to decompose, and there is no doubt that this action once set in, would have an effect upon the permanency of the print. The quickest and most effective way to remove the soluble fixing salt is to wash for a few minutes and then to lay the print upon a sheet of clean glass



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NIAGARA IN WINTER.

and squeegee all superfluous moisture from both back and front. It is then laid in a fresh dish

of clean water for a few minutes, and the operation repeated several times.

This of course is a method that can only be conveniently adopted with a few prints. When a large quantity are to be washed they should be kept moving in as big a vessel of water as possible, and the water completely emptied, say, every five minutes for two hours.

Before purchasing any washing machine it should be carefully tried, as many of them are liable to injure the tender gelatine prints.

Another thing to avoid is the so called hypo-eliminators, the majority of which certainly remove the hypo, but only by converting it into an equally if not more disastrous compound. Water is the most efficacious eliminator of the fixing salt.

In speaking of disadvantages of prolonged washing we have omitted to mention another serious item that should be taken notice of. The gelatine films after a long immersion in water become very soft, and if, in this state, they are squeegeed on to glass it is highly probable that they will adhere tightly to it, defying all efforts to remove them either wet or dry, except in shreds, with a knife.

Gelatine is in fact so susceptible to moisture and accidental injury, that the beautiful polish that is given to the prints will soon depart, and the picture becomes less brilliant. In order to obviate these defects many methods of hardening the film have been recommended. Among others is a method of tanning. The solution is made up as follows :

Distilled water	36	grains
Tannin	15	grains
Sat. Sol. Potash alum	3½	ounces
Sodium chloride	2	drachms

Into this bath the prints are placed for about five minutes; they are then thoroughly washed. In every case when an alum bath is used, either before or after toning, it is absolutely essential that copious and thorough washing should take place, otherwise decomposition of the hyposulphite or sulphocyanide will ensue, as already pointed out.

Unfortunately, however, gelatine is a substance which combines chemically with tannin, and this compound, as well as the paper, will in time gradually turn yellow, or yellowish-brown; therefore this method cannot be confidently recommended to give the best results. Another method which is often used is that of immersing the film in a saturated solution of potash alum. Dr. Stolze, however, has pointed out that alum has always an acid reaction, and that in time prints treated with this bath have a tendency to turn yellow, and recommends the following as the most suitable bath for hardening gelatine-chloride prints.

Chrome alum	1 part
Distilled water	100 parts

Dissolve and add ammonia drop by drop, till a permanent precipitate is formed on shaking the solution. The liquid is then filtered, and the prints bathed in it for three or four minutes. Wall recommends the use of this bath previous to toning all prints, and omission of the alum from the toning bath.

Walter E. Woodbury.

(*To be continued.*)

ORTHOCHROMATIC PHOTOGRAPHY AND ITS PRACTICAL APPLICATION.

It is very evident that the prominence given to orthochromatic photography at this World's Congress of Photographers reflects the growing interest in the use of color sensitive plates, not only to produce monochromatic results from nature and the production of the artist, but a close realization of that long sought desideratum—photographs in the colors of nature.

Since the first intimation by Colonel Waterhouse for the use of a dye,—eosin in collodion to overcome the inability of the collodion process to render other than the blue and violet rays of the spectrum,—scientists have worked assiduously to overcome the difficulties that were inherent in the old wet and the dry-plate process of the present, and to no one are we so much indebted for the present success in orthochromatic photography than to Dr. Herman Vogel of Berlin. We owe, also much to the research of Mallman and Scolik of Vienna, Bothamly of England, and others we might mention, who by their liberal contributions to the literature of orthochromatic photography have done much to aid those who have made it their business to produce commercially the plates for the photographer's use.

The dyes now generally used, either by mixture with the emulsion before coating the glass plate or celluloid film, or dyeing the ordinary gelatine plate afterward, are eosin, erythrosin, rose bengall and cyanin, the latter we believe but rarely used, owing to the unsaleable character of the plates made with it. To the above may be added azalin, a compound of Dr. Vogel's invention, said to consist of chinolin red and cyanin blue.

Orthochromatic photography has had its greatest advocates in Germany and Austria in the repro-

duction of works of art in monochrome. Since the introduction by myself in 1885 of orthochromatic plates, the use both by the amateur and professional photographer has had a steady growth. The intelligent amateur, as seems to be always the case on the introduction of any improvement in photography, was the first to test its merits, then the professional copyist of art works took hold of them, and their results now vie with the best products of Europe. The professional photographers of America were the last to take hold of and use the orthochromatic method, and the wonder to me is that they are not more used by them. One reason is, I believe, a want of acquaintance with the orthochromatic plate, and with many the idea prevails that a color-screen must be used under all circumstances; this arises, it seems to me, from an unwillingness on the part of photographers to read the literature provided for them on the subject, which if read would make many things plain that they remain in ignorance of, and as is often the case lose business for want of the little knowledge so easily acquired.

It is, however, very pleasing for me as a manufacturer of orthochromatic plates to say, that since 1891 the increased use of these plates has been very large as compared from the time of their introduction in America up to that date.

The use of the color-sensitive plate may be used under all conditions when a plain bromide plate has previously been employed. Its use is to harmonize contrasts, whether in the dress of the sitter or a view from nature. Greens and yellows are rendered with more detail and color value, while blues and light reds in drapery are given their proper color-value instead of being rendered lighter in the photograph, as is common on the ordinary gelatine plates.

The Color Screen—When and How to Use It.

For ordinary landscape work a very light yellow screen is all that is necessary, a dark yellow or one of orange shade would falsify distance. The most suitable place for the color screen is at the back of the lens board, sliding it in two grooved cleats, and should be placed in position when focusing. A screen of such a tint as this one would require an increased exposure of four to six times, depending on the state of the atmosphere, the yellower the light the shorter the exposure, and towards evening may be dispensed with. The value of a light yellow screen is best shown where the vista is slightly hazy, or where the clouds are included in the view. Their outlines and forms will be much better rendered in the negative.

Use of Screens in Copying Paintings.

In this class of work the selection of the proper color screen is of more importance than in landscape work, and the photographer should be provided with two or three, ranging in tint from a moderately strong yellow, medium and dark orange. Paintings are best photographed in direct sunlight, and by examining the painting through the color-screen it will not be difficult which one of the screens to select. For instance take a modern French painting, consisting of light and brilliant colors—a yellow screen will answer, but with a German or English painting, containing strong reds and dark blues and greens, we would select an orange color screen, and correspondingly increase the time of exposure. It may astonish some of you to learn that as much as ten minutes' exposure is given in direct sunlight on paintings that are old, or painted in strong colors.

Photography in the Colors of Nature.

The objective point that has been striven after for years seems now near of being accomplished. I do not mean the actual photographing of either objects of nature in colors, but through and by the agency of the orthochromatic plates. By the patient and scientific research of Dr. H. Vogel, of Berlin, and Frederick E. Ives, of Philadelphia, the first as achieved by triplicate negative and a like number of superimposed impressions, reproductions of objects in color so true to the originals in color as to be quite a commercial success, and in this country is being carried out by Mr. Kurtz, of New York. Of Mr. Ives's work I have seen a great deal; it differs in result from that of Dr. Vogel's in that the final picture is a triple image—a positive—on glass viewed through three color-screens in an instrument invented by him called the heliochromoscope, and the object as viewed is seen in all of nature's brilliant coloring.

Color Photography (so-called)

is now achieved by making three negatives of the object on orthochromatic plates through three different color-screens, viz.: violet, green and red. I have here samples of such color-screens. In printing by the colotype or half-tone block, as in Mr. Kurtz's work, inks in the three primary colors are used, viz.: blue, red and yellow. The proper selection of tints, however, is a very important matter.

Developing of Orthochromatic Plates.

The same developer as used for the plain plate may be used for the color sensitive plate, except that we find it best to use it slightly diluted, as the color sensitive plate more readily takes on density, and the exposure should always be generous, it is necessary in order to get full color values.

Keeping of Orthochromatic Plates.

A certain amount of doubt as to the keeping qualities of orthochromatic plates has been disseminated in this country. I can only say with regard to those of my own make, that I have evidence of many cases where they have yielded perfect results from nine to ten months to a year and more after leaving the factory. Plain plates orthochromatized by the bathing process, writers tell us, are not to be depended on over a few weeks. From past experience I am led to believe that plates from a proper orthochromatic emulsion have as good keeping qualities as the plain plates from same emulsion.

In conclusion I may say, that I am firm in the belief that color sensitive plates will in time replace the plain bromide plates as the latter have the old wet collodion.

John Carbutt.

"COARSE-GRAINED NEGATIVES"—HOW TO PREVENT THEM.

[World's Congress.]

It is an acknowledged fact that there is a difference between the grain of a highly sensitive plate and one of a lower degree of speed, but from experience I have found that this difference need not be so great as is generally supposed unavoidable.

Extreme care in the manufacturing of the emulsion is necessary to prevent it. Without this great care there may be great sensitiveness, but there will be coarseness. From such plate it is impossible to get a fine-grained negative, but it is possible to get a coarse-grained negative from a fine-grained plate.

After years of observation I have noticed that as a rule photographers make a better class of negatives during the cooler months than through the hot season. The grain of the negative is finer and the general appearance cleaner. The reason may appear obvious. Use ice, some one will say, and all the difficulties will be overcome. The suggestion is good, but it does not fill all requirements. The negative may appear without fault up to the time of putting on rack to dry, and still when you examine it after drying it does not possess the quality you expected to find. The reason is that during the sultry days of the summer the drying of the negative takes several hours, the gelatine film becomes partly decomposed, allowing the particles of silver bromide to come together, they having an affinity for each other, the sack of gelatine which kept them apart being partially destroyed, forming coarse particles. The negative has then a woolly appearance.

All negatives have the finest grain and appear the cleanest immediately after fixing. What we want is to retain this quality when dry. How shall it be accomplished during the hot season when everything is warm and the drying so prolonged? My method is as follows:

I have a small ice-box for my developer made like this: [illustration omitted] in which are the two stock solutions. When I mix the developer, I take enough ice-water to bring it to about 60 degs. Fahr. I first rinse out my tray with ice-water, then develop the plate; the fixing bath also is kept cool. If the water I wash my negatives with is too warm I simply rinse with it and allow the negtive to soak in cool water in a grooved box about one hour, changing water two or three times. Then I rinse once more and put on rack to dry. Between this point and the time when the negative is perfectly dry it is liable to injury during the summer months when the atmosphere is 90 degs. or over and often very humid, taking eight to ten hours to dry perfectly, thus changing the density and producing coarse grain. I have seen negatives that were developed, fixed and washed in the evening having wet patches on them the next morning. They were taken to another room to perfect the drying. The consequence was, where the drying commenced to be more rapid there was at once a change of intensity, ruining the whole lot.

It is important, therefore, that the negative should dry as quick as possible, in as cool and clean air as can be had. The best arrangement I have seen for this purpose is now being used by one of the most eminent photographers in this country, Mr. M. J. Steffens, of Chicago. It is a small electric fan by the use of which the negatives can be dried in half an hour or less. Connection is made to a 16-candle lamp wire.

Just a word more as to another cause of coarseness. It may be produced by using a developer too strong in alkalinity. A strong alkali has the same effect upon the film as less soda with heat.

M. A. Seed.

OHIO CONVENTION OF PHOTOGRAPHERS.

A CONVENTION of the Photographers' Association of Ohio was held at Columbus, August 8th to 10th inclusive. There was a good attendance. Officers were elected and various business matters transacted. The President then announced the names of those to whom the prizes had been awarded, which were as follows:

Class A—First prize, H. S. Bellsmith. Upon the second prize in Class A Messrs. Bowersox and Overpeck are a tie and mutually agreed to divide evenly the second and third prizes in this class.

Class B—Mr. Bellsmith first prize, Mr. Hume second, and Mr. Overpeck third.

Class C—Mr. Bellsmith first prize, Mr. Overpeck second, Gatah and Beaudurtha tie on the third prize. The matter of the third prize was not settled owing to the fact that the gentlemen who tied were not present at the time.

Class D—Mr. Bellsmith first prize, W. M. Gatch second.

Class E—Mr. Hollinger first prize.

PRESIDENT SCHNEIDER'S ADDRESS.

Ladies and Gentlemen: It is with the most profound appreciation of the great honors that you have conferred upon me during the past year that I bid you welcome to the Third Annual Convention of The Photographers' Association of Ohio. A year ago you selected me to hold the responsible position of President of this Association. Since that time I have used every effort to advance the principles that are represented by our society, and to-day I am proud to stand before you in my dual position: as President of this Association to thank you for your presence, and as a resident of Columbus to welcome you to our beautiful city.

In the first place I want to congratulate you upon the magnificent State organization that we have succeeded in effecting. I consider that I am keeping strictly within the bounds of reason and justice when I say that I firmly believe that we have the banner State organization in the country. The fact that we have accomplished this within so short a time, should give us more courage to meet the future as well as to tend to make us exceedingly careful in our deliberations at this time, in order that the seed we are now sowing may be carried to every State in the Union, and that it may meet fertile ground, and meet with the great success that it has enjoyed in Ohio.

I am a strong and firm advocate of State associations, and I believe that the time is not far distant when each State will have its own organization. This would be of inestimable advantage to the profession. Although we now have a National organization it cannot be said to be representative in the strictest sense of the word. But if each State, or even the majority of them, should be properly organized the local societies could select delegates to represent them at the National Convention, and the value of the result that could be obtained would far surpass anything that we could imagine. It is unnecessary for me to say anything further upon a subject the importance of which you all must fully appreciate.

I desire to congratulate you upon the financial condition of the association. The report of the Treasurer shows a good balance on hand at the close of last year, and I have no doubt that the present Executive Board can make a report that will meet every expectation. I also wish to congratulate you upon the harmony and general good feeling that has existed among your executive officers during the past year, for without their generous support, any effort of mine for the success of the association would be in vain.

It is our intention to make this convention one of sociability. In accordance with this idea it has been the effort of the Executive Committee to make the social part of the programme a very important feature of the gathering. Sociability at the meetings,—sociability between the sessions,—sociability everywhere,—that is the thing for which we should all strive. It is by just such social communings one with another, that we may unravel the professional tangles that have troubled us for years, perhaps; it is this way and this way only that we can help ourselves as well as to assist others. Let mutual good fellowship and sociability, therefore, be the motto of this convention. To complete the social functions of the session we have arranged for a banquet to be given to-morrow evening. I do not believe that any one will regard this as an unnecessary expense, and I sincerely trust that it will not fall short of its purpose.

You are all aware that some time ago we offered prizes for the highest grades of work that should be furnished by the photographers of the State, These prizes have been kindly furnished to us by the various manufacturing and stock concerns, and to them the thanks of the association should be extended. In this time of need they have shown themselves to be friends indeed as well as friends in deed.

LATITUDE IN EXPOSURE AND SPEED OF PLATES.

BY F. HURTER, PH.D., AND V. C. DRIFFIELD.

(*Continued from page* 474.)

It is, of course, obvious that these experiments should be made in a room free from draught, and it is necessary to place the candle in a tall box, blackened inside. We are strongly in favor of keeping the candle well in view during the entire exposure, so that, should any fluctuation in the light take place, we may be aware of it. If the candle be used in the open room, all white or bright surfaces capable of reflecting light should be removed.

We now come to a description of the apparatus we use for making speed determinations. Diagram No. 3 shows the form in which we use it. A is the candle; B is the dark slide containing the strip of plate of which the characteristic curve is to be determined; C marks the position occupied by the dark slide during exposure; and D is the revolving disk by means of which the varying exposures are given, and, as this disk forms the most important part of the apparatus, we will proceed to describe it in detail. The disk is preferably made of a sheet of metal, but may be cut out of cardboard. It is 11 inches in diameter, and diagram No. 4 will serve to show how it is perforated in order to yield a series of nine exposures, each double the preceding one. The length of the strip we use for a determination is that of a quarter-plate, or 4¼ inches. This length, divided into ten equal parts, gives the width of each successive step in the perforations of the disk. Nine parts only are required for the exposures, the tenth being

protected from light in the dark slide during the exposure, so as to provide what we term the "fog strips." It will be seen that the angular apertures of the first perforation is 180 degs., produced by cutting out two entire quadrants of the circle; the next has an angular aperture of 90 degs., or one quadrant; the next of 45 degs., and so on, the angular aperture of each successive perforation being

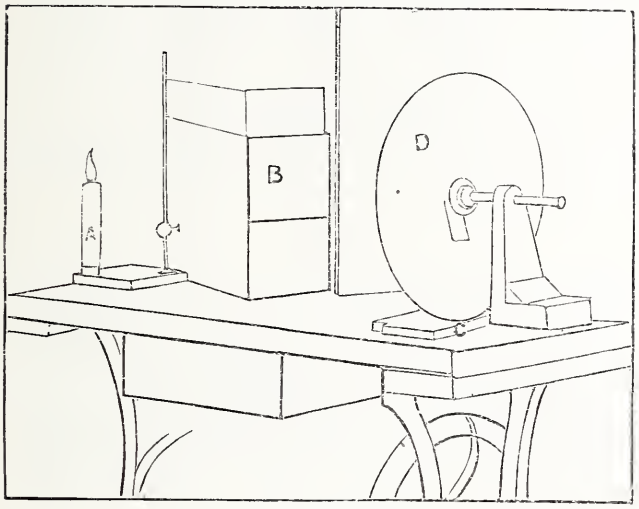


Diagram 3.

halved till the ninth is reached. These apertures, of course, require to be cut with the greatest accuracy, and the disk, when finished, should be coated with dead black paint. It should then be mounted on a central spindle, which can be caused to revolve with considerable rapidity by some suitable mechanical arrangement. We, ourselves, called into requisition for the purpose of an old sewing-machine stand, which permits the disk to be driven by the foot.

Having completed our description of the apparatus, we will next describe the actual operation of making this determination. First of all, as to the plate. If a plate be examined by placing it between the eye and the red lamp, it will be found that the opacity of the film falls off at the edges. The edges should, therefore, be scrupulously avoided, and the strip should be cut from the centre of the plate, or, at any rate, well away from the margin. The operation of cutting the plate should be conducted as quickly as posssible, and as far away as possible from the red light, so as to avoid all fogging action of the light upon the plate. The width of the strip may conveniently be made about one inch. When the plate is securely placed in the dark slide the latter is placed in its position behind the disk. The distance from the candle to the place occupied by the plate is carefully adjusted, and the candle is lighted and trimmed. When the flame has reached the requisite height the exposure may commence. The disk is caused to revolve, and, at a given moment, the slide protecting the plate is drawn, and the exposure continued for the requisite length of time.

Now, as to the best range of exposures to decide upon in the case of a plate of the speed of which we know nothing, we should advise a series commencing with 80 cms., down to 0.312 cms. This range will be found to include as much of the characteristic curve of the majority of commercial plates as is required for a speed determination. A little consideration of the revolving disk, however, will show that, in order to give an actual maximum exposure of 80 cms., it will be necessary to continue the exposure for twice 80, or 160 seconds, the candle being placed at a distance of one metre from the plate. The reason of this is that the actual maximum exposure only proceeds during half the revolution of the disk, the light only reaching the plate during the passage across it of 180 deg. out of the 360 deg. Though we prefer to work with the candle at a distance of 1 metre from the plate, it may be brought nearer to it if it be desired to curtail the exposure. At a distance of 0.707 metre, the light of the candle is equal to 2 cms., and, at a distance of half a metre, it is equal to 4 cms.

Having exposed the strip, we next proceed to develop it; and here we must say a word or two upon the subject of the developer. We do this knowing perfectly well that we shall meet with considerable opposition; but we, nevertheless, again assert that, for all ordinary photographic work, there is no developer superior to ferrous oxalate. We prefer it because of the uniformity of the color of the silver deposited by it, a point of very great importance when we come to the operations of printing and enlarging by developing processes, in whtch the exposure is arrived at by calculation: we prefer it because we never yet found a plate with which it disagreed, and this is more than can be said of other developers. It will also develop an old plate which may have been carelessly laid by for years; while, with another developer, it would be hopeless to obtain a passable

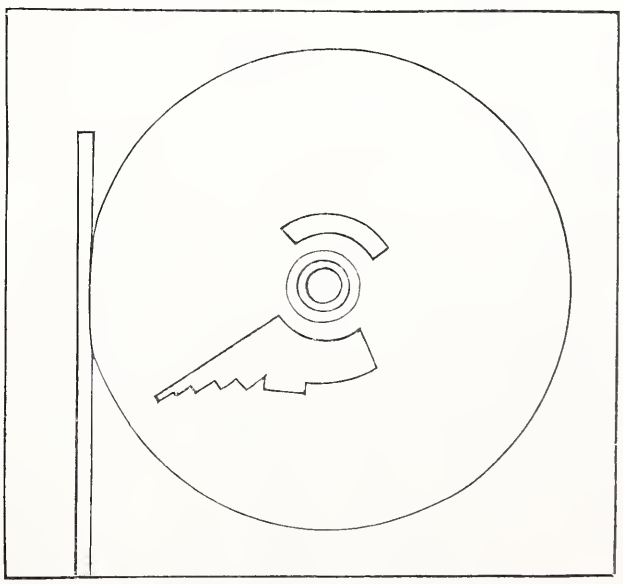


Diagram 4.

result. We prefer ferrous oxalate because, of all developers, it is least liable to attack silver salts which have not been acted upon by the light, and because it will not lend itself to the production of foggy messes. We do not wish, for a moment, to imply that other developers may not have their special uses; on the contrary, for example, we have found rodinal of the greatest value in the case of certain plates, when dealing with extremely short shutter exposures, and also in flash-light work.

However, to proceed with the operation of development. It is advisable that this operation be conducted at a fixed temperature, and we find 65 degs. F. the best to adopt, as it is easily obtainable both in summer and winter. The developer itself should be brought to this temperature,

and maintained at it by placing the developing dish in a water bath of the same temperature. The constituents of the developer are intimately mixed by stirring, and, at the moment of pouring on to the plate, the time is noted. The dish should only be rocked for a few moments in order to expel any air bubbles from the surface of the plate, and should then be covered up, so as to expose the plate no more to the red light than is absolutely necessary. Examination of the plate during development should be avoided as far as possible, as no red light whatever is safe in the case of even a fairly sensitive plate ; and we believe that too frequent examination, prompted by curiosity or impatience, is to some extent responsible for alleged alterations in density ratios. About five or six minutes will, as a rule, be found the best length of time to continue development, in order to obtain that range of gradation most suitable for subsequent measurement. But, however long development may be continued, the time occupied should be carefully noted. The object of the fixed temperature, and the exact time a given plate takes to reach a certain development factor, is of the utmost importance if we afterward desire, upon a similar plate, to produce another negative having a different range of density gradations.

After development, the strip is fixed and washed in the ordinary way, and, after washing, it is well to wipe the surface of the film gently with a plug of wetted cotton-wool. The plate may be treated with alum if desirable, and both the alum and fixing baths should be fresh and perfectly clean. As the films of some plates are liable to loosen from the glass, when submitted to the heat of the lamp in the photometer, it is sometimes well to soak the plates for a few moments in a weak solution of glycerine after washing and before drying. When the plate is dry, and this may be hastened by means of alcohol if desired, the back of it should be thoroughly cleansed, and the film wiped with a silk handkerchief. It will now be found advantageous to define the dividing lines of the smaller densities with a pen and ink on the film. This will materially assist when we come to measure the plate, which operation may now be carried out. We do not here propose to enter into any description of our photometer and the method of using it ; this will be found in our original paper in the *Journal of the Society of Chemical Industry*.

(*To be continued.*)

CHEAP PHOTOGRAPHY.

A POPULAR English paper "Answers" contains the experience of a cheap itinerant photographer which, if true, proves the Britisher to be of a far more gullible nature than we have hitherto given him credit for.

BUSKING AND DRAG-PITCHING.

"The reason why I took to photography was that I thought I should like it better than what I was at. I was out busking and drag-pitching with a banjo then." In reply to my puzzled stare he explained "Busking is going into public-houses and playing, singing and dancing ; and drag-pitching is going out in the day down the little courts and no thoroughfares that we call drags. I'm a very determined chap, and when I take an idea into my head I always carry it out somehow or other."

CAME OUT ALL BLACK.

"Well, after a deal of trouble, I got a camera, but I knew nothing about photography then. I had some cards printed before I got the machine, and the very first day I had it a customer came in to be took. I'd had no time to try it, so I tried it on him ; I didn't know how to do it and it came out all black, but I gave it to him telling him it would come out right when it dried, and he went away quite delighted. The first Sunday after I opened I took £1.3s., and everybody was quite pleased with their spotty pictures, believing that they'd come out right when they got dry. They were sixpeny ones mostly, but I had one chap come for a half-guinea portrait, and it turned out a thundering bad one, but he swears it's the best he ever had took."

SAMPLES.

"I soon got to take 'em pretty well, but to get my samples Jim and I and our pals would go to the shilling galleries and be took and use them as specimens; that's done everywhere, even by pretty good shops. I've taken as many as 120 to 140 portraits in one day when I had a studio in Whitechapel. Sunday was the best day, for you see people have got their wages then, and don't mind spending them, and we get a lot of shilling portraits then. I always took them shilling size, showing the figure down to the knees, and a table and a vase of flowers and a balcony in the background, and said, 'You get all this for a shilling, but the sixpenny size has the body cut off and no table, and the balcony is took away, and you woudn't like to appear like that,' and they generally paid the shilling."

THE AMERICAN AIR PRESERVER.

"You see we had to go in for dodges, for the sixpenny ones didn't pay. One of the best dodges was our 'American Air Preserver,' which was nothing more than a card, old benefit tickets, brown paper, soap wrappings, anything—just varnisbed on one side and stuck on the back of the glass, and if a customer came in and wanted a sixpenny portrait I'd show 'em one of the air preservers, and tell 'em they was all chemicalized and come from America, and that without them their picture would fade. I used to tell them we made nothing out of 'em, that they cost twopence each, which is what I charged, and was worth all the money. This dodge always took and we have had people come to us with photographs to get our air preservers, saying they couldn't get them anywhere else. We charged 3d. if it was not one of our pictures.

THE "BRIGHTENING" SOLUTION.

"Another dodge was the brightening solution. After taking a portrait Jim would stay in the room while I went and developed it, then he would call out 'Is it bona? and I replied 'Say' for yes, and 'Nanti' for no. If it was good Jim would take and show it all round, and if not he wrapped it in a lot of paper so as to take a long time to undo, crying out, 'Take sixpence from this lady, please.' 'Oh, let me see it, she would say. 'Money first, ma'am,' replied Jim, 'and then you does what you like with it.' If she undid it and found a bad one she would say, 'This ain't like me ; it's no picture at all.' And Jim would answer, 'It will become better as it dries, but if you like you can have it passed through the brightening solution for another twopence.' They generally had it brightened,

and then, before their face, we would dip it in some water, wrap it up, tell them not to expose it to the air for an hour or two, and it would be all right.

"We never turned away business, and if the people was in a great hurry or it was too late in the day to take them, we would go through the form of doing it and give 'em a specimen from the window folded up in paper and tell 'em not to expose it to the light for three days. They mostly went away quite contented, though they sometimes came back, and then we took them properly."

Correspondence.

American Museum of Natural History,
Central Park (77th St. & 8th Ave).

New York City, August 25, 1893.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: Permit me to correct an error in your last issue. The death of Mrs. L. C. Laudy, as there announced, should have been that of Mrs. L. H. Laudy, the wife of my brother. Please correct this oversight in your next issue.

Very truly yours,

L. C. Laudy.

Notes and News.

A new photographic journal, *Chasin Soiva*, has been started in Japan.

An exhibition will be held in Calcutta during December, under the auspices of the Photographic Society of India.

The Photographic Times Convention Number is a really excellent production.—*The Photographic Review of Reviews.*

By the death of Mr. George M. Taylor, the Photographic Society of Philadelphia loses one of its most active members.

THE articles in this week's issue of THE PHOTOGRAPHIC TIMES are all well written and interesting.—*The Daily Standard-Union.*

A new photo club just started in Ceará, Brazil, under the name of "Photo Club lo Ceará." All correspondence to be addressed to Mr. João Sidrin, Secretary Photo Club, Ceará, Brazil.

Stolen.—A 6½ x 8½ Dallmeyer R.R. lens, No. 38078, without cap or stops; was stolen from the stock of W. C. Carland, Albany, N. Y., recently. If this lens is offered for sale to any of our readers, it is requested by Mr. Carland that he be telegraphed at once.

The Rev. Francis Wolle, of Bethlehem, Pa., died at the ripe age of 77 years.

He was one of America's greatest photo-microscopists. His illustrated works on the diatoms, desmids and fresh-water algæ of the United States are an everlasting monument to this distinguished scientist.

An International Photographic Exhibition will be held at Bristol, from 18th December, 1893, to January 22d, 1894. All particulars and entry forms can be obtained from F. Bligh Bond, Hon. Sec. Bristol International Exhibition, 36 Corn Street, Bristol. American exhibitors are advised to send their exhibits by the "Dominion" and "City" lines direct to Bristol, with which companies special rates for exhibitors' packages have been made.

The Seventh Annual Joint Exhibition under the agreement between the Society of Amateur Photographers of New York, the Photographic Society of Philadelphia, and the Boston Camera Club, open to all photographers, will be held by the Society of Amateur Photographers of New York at the gallery of the American Fine Art Society, 57th Street, from the 16th to the 28th of April, 1894. Entry forms can be had by applying to the Committee, consisting of Mr. T. J. Burton, R. A. B. Dayton, and R. A. Bracklow.

The Editorial Table.

World's Fair Number.—The September number of the *Cosmopolitan* is devoted almost exclusively to the World's Fair. It is profusely illustrated from photographs by the official photographer, Mr. C. D. Arnold, and is, as a whole, a triumph of modern photographic methods.

A New Toilet Mirror.—Louis Pattberg & Bros. have recently introduced a new toilet mirror, which will be found a very welcome article in the dressing-rooms of photographic galleries. It is called the Elite Toilet Mirror, and costs $9.

Record of Photographic Patents.

500,707. Magazine Camera. Edgar E. Ellis, Rochester, N. Y.

500,875. Photographic Roll Holder. David G. E. de Faucompré, Paris, France.

501,340. Photographic Gallery. Eugen Hackh, Stuttgardt, Germany.

501,703. Photographic Camera. Charles B. Withington, Janesville, Wisconsin.

501,866. Photographic Shutter. Frank A. Brownell, Rochester, N. Y.

501,931. Photographic Camera. Julius D. Garfield, Springfield, Mass.

502,198. Photographic Camera. G. Osteman, Boston, Mass.

DESIGNS.

22,649. Camera Case. H. Casler.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of photography, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editor reserves the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules given must be strictly adhered to or the competitor will be disqualified.

2. The camera must be held in the hand during the exposure.

3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.

4. The prints must be mounted but not framed.

5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

Queries and Answers.

118 MIAMI.—I have recently had occasion to reduce the density of some lantern slides, locally, with ferri-cyanide of potassium and found that they turned blue where it was applied. I made up a solution of the ferri-cyanide and put a few drops of it into a tray of water, and then put the slide into it directly from the hypo, or rubbed the cyanide on with a tuft of cotton. The hypo bath was the ordinary chrome alum and sulphuric acid bath after Cramer's formula.

Did the slides turn blue because there was not enough hypo in the film, or why? Will anything remove the blue?

118 *Answer.*—The blue color is caused by the presence of iron in some form. Had you, for example, developed the plate with ferrous oxalate, and not all of the iron had been washed from the film, bluing of it is certainly to occur on the application of ferri-cyanide of potassium, or iron might have accidentally entered your hypo or wash water.

You may possibly be able to remove the blue color by soaking the plate in a weak alkaline solution.

119 LYNCH.—Glacial acetic acid is recommended to add to the uranium nitrate and ferri-cyanide of potassium solution for coloring lantern-slides, but I find to get satisfactory color without the acid. Why then is it put in the solution?

119 *Answer.*—Ferri-cyanide of potassium hardens the gelatine film very considerably, and encloses thus the coloring matter so firmly as to make it impossible to wash it out completely. The acetic acid keeps the gelatine soft and permits the removal of the toning solution by washing in water.

The skies and other not developed portions of your slides are colored, at least to a decided yellow, if not deeper.

120 SANTANDER.—When reading about the many experiments made to photograph in natural colors I came across a word I cannot understand the meaning of, namely, "interference of light." Will you explain?

120 *Answer.*—The name "interference" is given to the reciprocal action which two rays of light exert upon each other when they are emitted from two neighboring sources and meet each other under a very small angle.

An example of the interference of light is shown by the colors of soap bubbles, or when a very thin stratum of petroleum floats upon water.

For detailed information we refer you to a good book on physics.

121 SCHOOLEY'S MOUNTAIN has tried to make ferrous oxalate developer for bromide prints with water taken from a well at his present country residence, but finds the solution of potassium oxalate to turn milky. He has never found that to be so with Croton water. What is the matter? he asks.

121 *Answer.*—The water contains lime, and very much of it probably. In conjunction with potassium oxalate this lime forms an insoluble precipitate, which, remaining suspended, causes milkiness. Negatives or diapositives developed with such solution will be of opalescent appearance, but for bromide prints on paper it may be used without harm to the result.

THE PHOTOGRAPHIC TIMES.

AN ILLUSTRATED WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

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WALTER E. WOODBURY.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
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DON'T FORGET ME when you are away for the summer. You can send your Kodak, Hawkeye or Kamaret to me packed in a starch box, express collect, and I will develop and print and reload in less than one week. SAMUEL FRANKENHEIM, Practical Photographer, 45 Fulton Street, New York City.

A RARE OPPORTUNITY.—For sale, a complete set of The Century Dictionary; six volumes, bound in red Russia leather; cost $78; will sell for $60, cash. These books are new, just as they came from the publishers, never having been used at all. A rare bargain. Address "DICTIONARY," care THE PHOTOGRAPHIC TIMES.

FOR SALE.—Some sets of Apparatus and Lenses, at very low prices. E. EDWARDS, 137 W. 23d St., N.Y.

FOR SALE.—Photo Stock Business. I offer for sale the stock and business of H. C. Cady & Co., of Columbus, Ohio. This business has been established for over twenty years. It offers a splendid opportunity for a person to enter into a good business for a small amount of money. Address, T. M. BIGGER, Assignee, Columbus, Ohio.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

A SELECTED PORTRAIT LENS, made by Dallmeyer, for sale. This lens has done some of the best known work in this country. It was a premium lens, originally costing over two hundred dollars. It can be seen at the warerooms of The Scovill & Adams Co. It goes to the highest bidder. Call for or address "PREMIUM LENS," 423 Broome St., New York City.

ANDRESEN'S PURE SULPHITE, for Amidol, Paraamido-phenol, Rodinal, Eikonogen, or Pyro. Use only Andresen's *Pure* Sulphite of Soda. (See advertisement.)

"AMATEUR PHOTOGRAPHY," by W. I. Lincoln Adams, is "A Practical Guide for the Beginner." Illustrated. Paper covers, 50 cents; cloth bound, $1.

PHOTOGRAPHERS who haven't time to make their own Platinotypes should carefully pack their negatives and send them (six 5x7 negatives properly packed in cotton can be mailed) by express. Send for lists.
THE PLATINOTYPE CO.,
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"ARISTO LITMUS," the most sensitive Litmus Paper in the world. Sample bottle free to any address upon receipt of 5 cents to prepay postage. (Regular price, 15 cents per bottle. W. P. BUCHANAN, Philadelphia, Pa.

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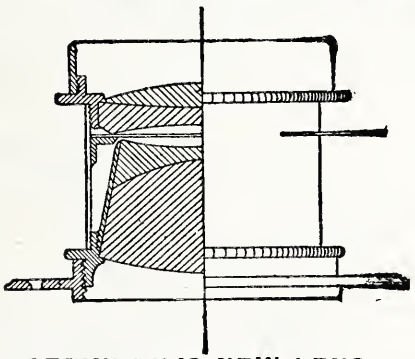
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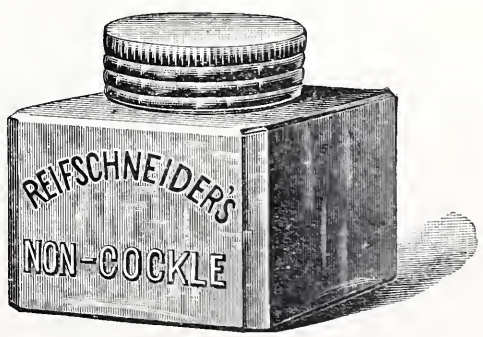
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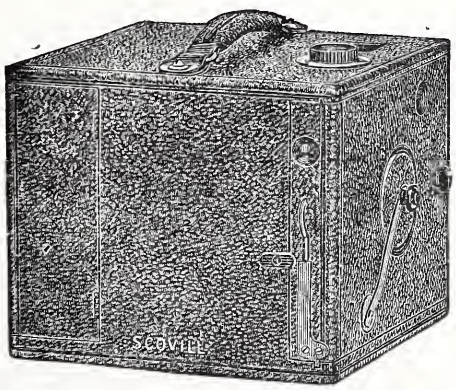
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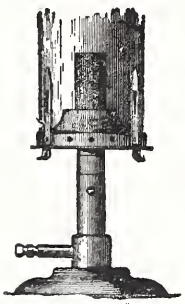
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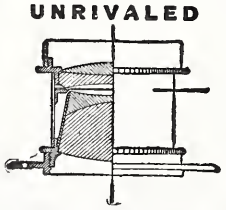
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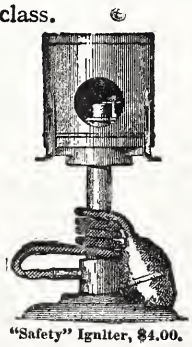
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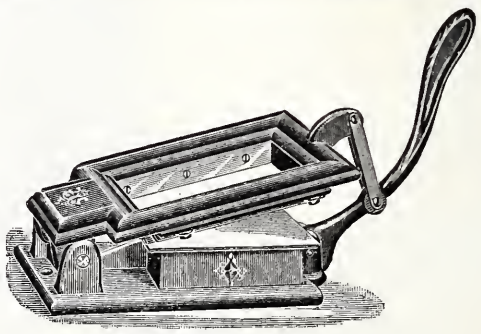
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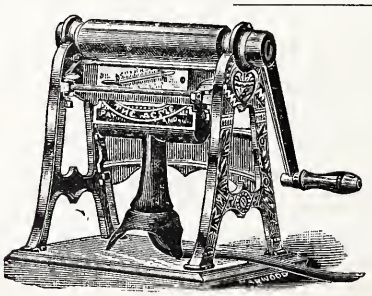


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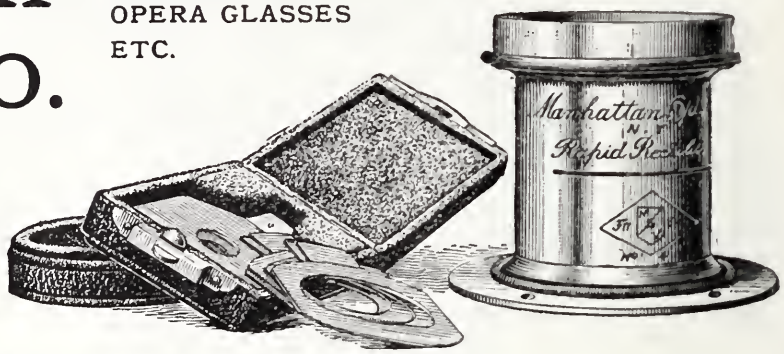
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THE LATEST NOVELTY.

Parvin Tele-Photo Lens.

"I have never seen such results before, either in Europe or America."—JOHN CARBUTT.

IT CAN BE USED IN ANY ORDINARY CAMERA.
IT IS INSTANTANEOUS.
IT HAS GREAT DEPTH OF FOCUS.
IT IS MOUNTED IN A SHORT TUBE.
IT IS LOW IN PRICE.
IT IS INVALUABLE IN GIVING DETAIL IN DISTANT OBJECTS.
EVERY PHOTOGRAPHER SHOULD ADD ONE OF THESE NEW LENSES TO HIS COLLECTION.
ASK YOUR DEALER, OR WRITE FOR DESCRIPTIVE PAMPHLET TO

WILLIAMS, BROWN & EARLE,

SOLE AGENTS,

10th and Chestnut Sts., PHILADELPHIA.

WE HAVE JUST COMPLETED

THREE NEW SERIES ZEISS-ANASTIGMAT LENSES.

SERIES I.—Highest Grade Portrait Lens.
SERIES II.—Very Rapid Outdoor and Group Lens.
SERIES IIIa.—Instantaneous Outdoor Lens, Specially Suited to Amateur Use.

SOLE AMERICAN LICENSEES,

BAUSCH & LOMB OPTICAL CO.,

ROCHESTER, N. Y., 515–543 N. St. Paul St.
NEW YORK CITY, cor. Fulton & Nassau Sts.

PHOTOGRAPHIC TIMES QUARTERLY COMPETITION.

No. 1 HAND CAMERA WORK.

This coupon to be cut out and forwarded with each set of pictures.

*Nom de plume,*_____

*Name,*_____

*Address,*_____

I hereby certify that the pictures entered by me are the results of my own work entirely.

*Signature,*_____

*Remarks,*_____

_____

DR. ANDRESEN'S AMIDOL ON TOP!

An arrangement has been made by the importers of the rival Amidols, by which the importers of the Hauff Amidol agree not to import or sell any more of that article in this country.

Dr. Andresen's Genuine Article

WILL HEREAFTER BE THE ONLY AMIDOL IMPORTED IN THIS COUNTRY.

We are the Sole Agents for Dr. Andresen's Amidol in this country. The prices for this energetic developer are as follows:

In 1 ounce cans	$0 75
" ¼ lb. "	2 75
" ½ " "	5 25
" 1 " "	10 00

Amidol Cartridges (making 16 ounces of developer):

In packages of 5	$1 00
" " " 10	2 00

If you have not yet tried this developer, send to us for a sample, with full directions for its use.

THE SCOVILL & ADAMS COMPANY,

Sole Agents for Amidol in the United States. 423 Broome Street, New York City.

FOR SALE BY ALL DEALERS.

THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

THE GENUINE ARE IN SILVER WRAPPERS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

Price of Scovill Magnesium Compound.

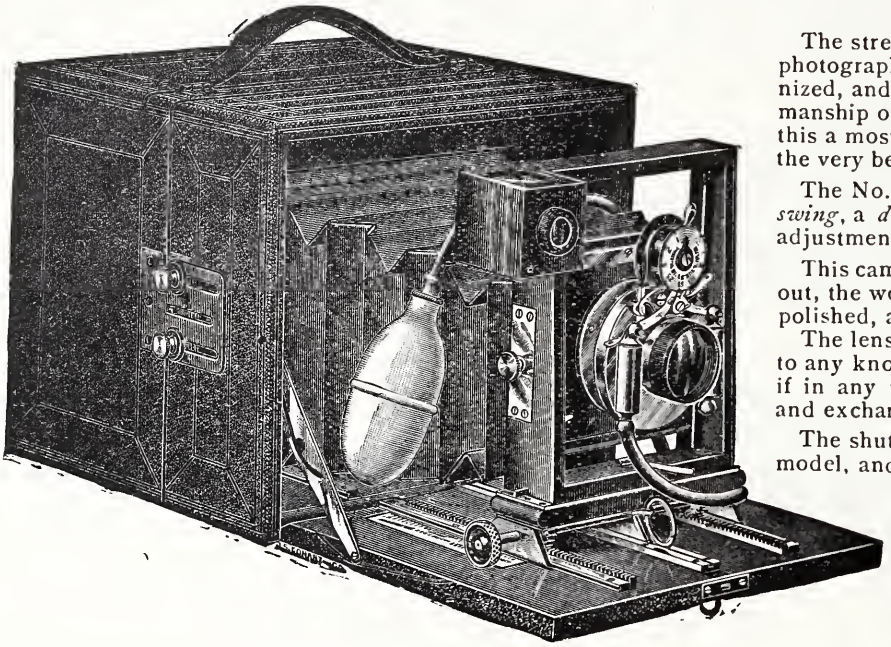
In ounce bottles, with fuses	$0 50
In quarter pound cans, with fuses	1 40
In half " " " "	2 65
In one " " " "	5 00

Price of Scovill Magnesium Cartridges.

	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
No. 2, " " "	80	9 00
No. 2½ " " "	1 20	13 00
No. 3 " " "	1 50	17 00

THE 5x7 FOLDING HAWK-EYE, No. 2.

With Taylor & Hobson, or Kamaret Lens, and Bausch & Lomb Improved Shutter.



THE 5X7 FOLDING HAWK-EYE. NO. 2.

The strength of the above combination from a photographic standpoint will be readily recognized, and the beautiful finish and fine workmanship of camera, lens and shutter, also make this a most desirable outfit for those who want the very best.

The No. 2 model has, in addition to the *double swing*, a *double sliding front*, thus giving every adjustment which will ever be required.

This camera is of extra fine hand finish throughout, the wood work being ebonized and French polished, and the leather is genuine morocco.

The lenses are guaranteed to give results equal to any known make of similar dimensions, and if in any way unsatisfactory, may be returned and exchanged.

The shutter is the latest and most popular model, and may be set for automatically timed exposures of from 1-100 of a second to 3 seconds with great accuracy, as well as for longer exposures in the usual manner. The lightness of this shutter, and freedom from noise and jar in quick exposure, also commend it.

Price, as above, with 3 F.W. Holders, for plates or cut films, $60
" Blair's Improved Roll Holder, with Automatic Tally, 9

Price, Blair's Film, per roll, 25 exposures, - - - - - $3
" " " " 50 " - - - - - 6

THE BLAIR CAMERA CO., Manufacturers,

BOSTON. NEW YORK. CHICAGO.

E. & H. T. ANTHONY & Co., Trade Agents, New York.

AT LAST

WE HAVE FOUND A PERFECTLY NEUTRAL AND CHEMICALLY PURE BRAND OF

Sulphite of Sodium

Which is so necessary in the preparing of developers, especially with

Amido, Para-amido-phenol, Eikonogen, Hydrochinon, Pyrogallol, and the other organic reducing agents.

Dr. M. Andresen, of Berlin, renowned for his discoveries of the modern developers, understood well the necessity of a reliable preservative of these substances when in solution, and he made

A Pure Sulphite of Sodium in Crystals.

THE SCOVILL & ADAMS CO. are Sole Agents for this much desired substance in the United States.

Price, in ¼ lb. cans, . . 20 cents.
" ½ " " . . . 25 "
" 1 " " . . 35 "

Ask your dealer for Andresen's Sulphite.



HIGGINS' PHOTO MOUNTER.

An entirely novel and superior adhesive,
Specially Prepared for Mounting Photographs,
Aristotypes, Scrap Pictures, Engravings, etc.

NOT A FLOUR OR STARCH PASTE, BUT A VEGETABLE GLUE,

Semi-fluid and always ready for use. Its consistency is soft and unctuous and it is absolutely free from lumps or grit. Spreads very smoothly and uniformly, adheres at once and dries quickly. Guaranteed not to warp, cockle, strike through nor injure the tone or color of any mount. Proof to decay, and the water will never separate, leaving the body stiff and hard, as occurs in pastes. Beautiful white color, and never changes. For either dry or wet mountings it is unequaled.

FOR SALE BY THE TRADE GENERALLY.

Prices in Screw-capped Jars: 3 oz., 15 cts.; 6 oz., 25 cts. 14 oz., 50 cts.
Also in one-half gallon and gallon jars. Three-ounce jar by mail, prepaid, 30 cents.

CHAS. M. HIGGINS & CO., SOLE MFRS.,
168-172 EIGHTH STREET, BROOKLYN, N. Y.

FOR SALE BY THE SCOVILL & ADAMS COMPANY.

Remember

THAT

"Three Crown"

Albumen Paper

Is absolutely the BEST.

WHY?

Because none but the Best of the Rives Paper is selected for Albumenizing the THREE CROWN BRAND.

It is therefore free from the imperfections often to be found in other brands, which arise from imperfections in the plain paper and cannot thus be avoided.

CHEMISCHE FABRIK AUF ACTIEN

(VORM. E. SCHERING) BERLIN.

E. SCHERING, BERLIN. TRADE-MARK.

ONE OUNCE

PYROGALLIC ACID

RESUBLIMED

From E. SCHERING,

MANUFACTURING CHEMIST, BERLIN, GERMANY.

E. SCHERING, BERLIN. TRADE-MARK.

REGISTERED.

SEE THAT YOU GET THE "GENUINE SCHERING'S.

REGISTERED.

THE SCOVILL & ADAMS CO.,
423 BROOME STREET, NEW YORK.

GEO. J. WOLF & CO.
PHOTO SUPPLIES
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QUALITY & QUANTITY GUARANTEED

918 Arch St.,
PHILADELPHIA.

The Finest of Blue Print Papers.

Albazure

Send 10c. for sample package 4x5.

AMATEURS, ATTENTION!



Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,
319 Washington St. BOSTON, MASS.

Revised Price-List sent on application.
Correspondence solicited.

NEW YORK PHOTOGRAVURE CO.,

NO. 137 WEST 23D STREET, N. Y.

PHOTOGRAVURE.
PHOTOGELATINE.
HALF-TONE. . .

ERNEST EDWARDS, PRESIDENT. Inventor of the Heliotype Process. Manager, Heliotype Printing Co., Boston, from 1872 to 1886.

W. R. STANBERY, SECRETARY.

"SUN AND SHADE," an Artistic Periodical.

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"Plates of the highest merit both in design and execution."—THE INDEPENDENT, New York.
"The highest level of achievement in photogravure work."—THE WORLD, New York.
"Photogravures of the highest quality."—THE HERALD, New York.
"Possessing the quality of drawing in India Ink or Sepia."—THE SUN, New York.

CHARLES H. PLEASANTS,

Wholesale Druggist,

IMPORTER OF AND DEALER IN CHEMICALS FOR PHOTOGRAPHERS' USE.

Albumenized Paper and Dry Plates of all Manufactures.

A Full Line of Chemical and Scientific Glassware kept in Stock.

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SPECIAL QUOTATIONS ON ORIGINAL PACKAGES.

Physicians' Prescriptions and Recipes of all kinds prepared by competent Pharmacists.

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NEW YORK CITY.

☞ **FRENCH, GERMAN, SPANISH AND ITALIAN SPOKEN.**



Try Vollmer's Crystal Eye Medicine.

Look out
for
imitations
of

WATERBURY CARDBOARD.



Look out
for the
genuine, too,
and see
that you
get it.

It is
the Best
and Cheapest.

In use by

F. W. Guerin,

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Urlin & Becker,

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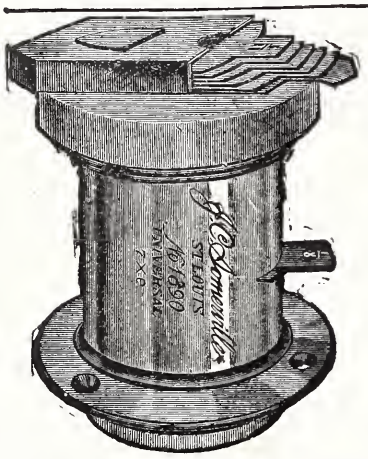
and many others who excel in the Photo. Art.

J. E. Somerville.

JOBBER OF

PHOTOGRAPHERS' SUPPLIES,

411 & 413 Washington Ave., ST. LOUIS.



This Lens requires much less "stopping down" than other instruments.

OUR NEW SYMMETRICAL LENS.

The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and with the same length of focus as heretofore a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

No.	Diameter.	Focus.	Size Plate.	Price.	With Iris Diaphragm.
1	1 5-16	7 1-2	5 x 7	$20 00	$25 00
2	1 11-16	10 1-4	7 x 9	30 00	35 00
3	2 1-8	12 3-4	8 x 10	40 00	47 50
4	2 7-16	14	10 x 12	50 00	60 00
5	2 11-16	18	12 x 15	60 00	70 00
6	3 3-16	21 1-2	16 x 20	75 00	85 00

IF YOU ARE IN WANT OF A LENS

Be sure to try our LENS before buying.

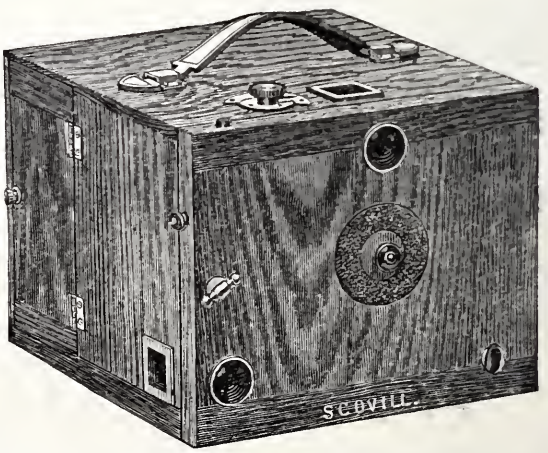
Will be sent subject to 5 days trial, and, if not satisfactory returned at my expense.

Send for Pamphlet and see what is said regarding them for Portraits, Groups, Large Heads and Views.

IMPROVED

ANTIQUE OAK

DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the IMPROVED ANTIQUE OAK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1. 4x5 Antique Oak, Knack Camera,	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.

It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

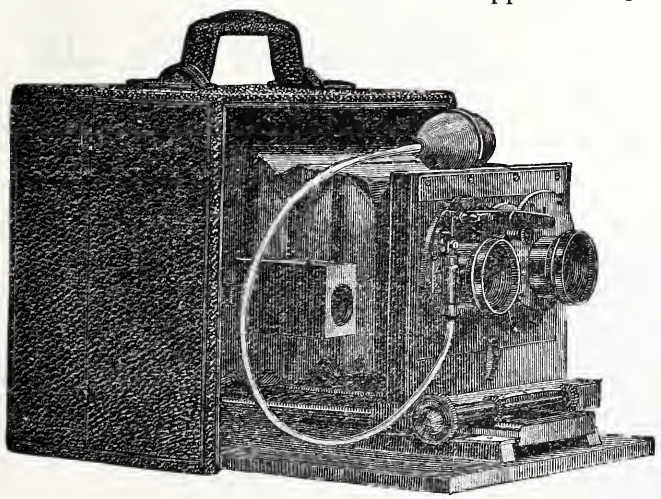
There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.



The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release,** $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front,** . $80.00

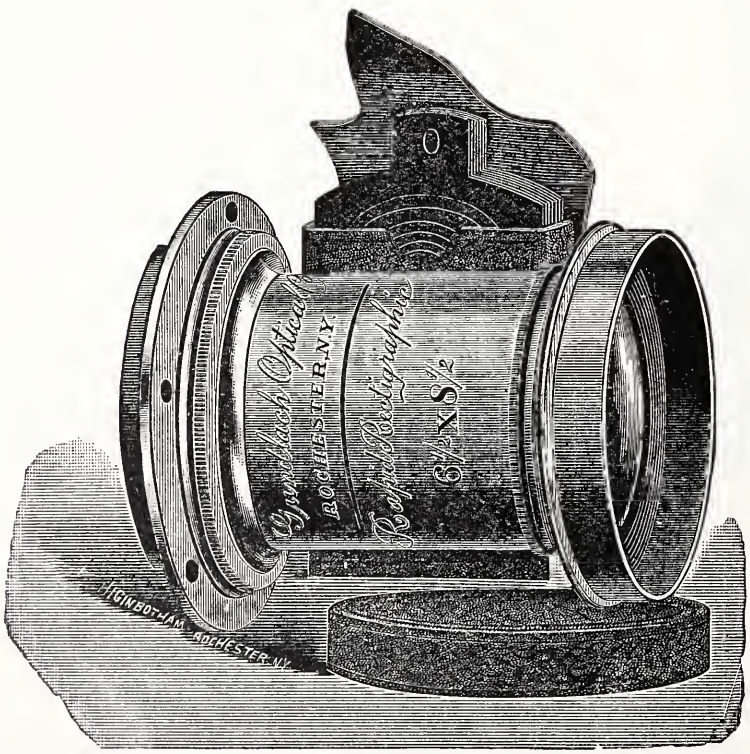
A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.

A. M. Collins
Manufacturing Company

would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

Warehouse, No. 527 Arch Street,
Philadelphia.



GUNDLACH OPTICAL CO.,
Rochester, N. Y.,

MANUFACTURERS OF

PHOTOGRAPHIC LENSES,
MICROSCOPES,
TELESCOPES, Etc.

We make LENSES for every requirement of PHOTOGRAPHY.

They are unrivalled in their excellence and are used by many of the most celebrated PHOTOGRAPHERS throughout the world.

Send for catalogue to your Stock Dealer or to the

GUNDLACH OPTICAL CO., Rochester, N. Y.

"What Jackson Says."

DENVER, COL., Feb. 13, 1893.

G. Cramer Dry Plate Works, St. Louis, Mo.

GENTLEMEN: Yours of February 12th is at hand. We send you to-night by express, a dozen 17 x 21 views, mounted, and two panoramas. We would have preferred to have had a little more time, and to have printed these expressly for you, but even as it is, I think you will find the selection a very good one. Nearly everything we have made lately has been on Isochromatic plates, and these, it is almost needless to state, have given us the most complete satisfaction. We now consider them indispensable for all outdoor work.

Yours truly,

W. H. JACKSON.

From the World's Fair.

Extract from a letter from Mr. B. W. Kilburn, who has the exclusive privilege of making stereoscopic views at the World's Columbian Exposition;

LITTLETON, N. H., April 7, 1893.

GENTLEMEN: I had fine success using your plates, and it is solid comfort to have a stock of such plates on hand; it gives courage, and you know to a nicety what is possible.

I did not lose One plate in Two Hundred and Ninety-two exposures, all Cramer's, from any fault in the plate, while in Chicago this last time.

Yours very truly,

B. W. KILBURN.

Official Photographer.

WORLD'S COLUMBIAN EXPOSITION,
DEPARTMENT OF PHOTOGRAPHY,
CHICAGO, July 5, 1893.

G. Cramer Dry Plate Works, St. Louis, Mo.

GENTLEMEN: After having used more or less of all the best brands of American dry plates, and yours exclusively since September last, I find the Cramer is the most reliable, runs most even, and gives results not to be obtained by any other dry plate.

Very truly yours,

C. D. ARNOLD.

"STOP"

right where you are! Do not turn another leaf until you have read every word on this page. We feel a delicacy in publishing the following, lest it may hurt someone's feelings, but we must consult our own interests and publish the facts "verbatim" as they come to us. We do not, as a rule, favor publishing testimonials, as we are not in the "patent medicine" business, but the following, being so overwhelming and wholly unsolicited, we feel that we are at liberty to publish it. So here you have it:

April 15, 1893.

The Obrig Camera Company, 119 *Broadway, City.*

Gentlemen:—Having had some trouble with Aristotype Paper, we wished to select the best commercial paper that we could find. For this purpose I purchased a package of each of seven kinds of paper, namely:

SOLIO, PERFECTO, PARAGON, ARISTO, OMEGA, B. &. P., N. Y.

As we wish to select the paper for photographing in our manufactory, as well as for other purposes, we wish one that could be developed with a simple bath. Prints were made of each of these papers in the ordinary manner, and toned in a plain bicarbonate of soda bath. Of these papers the Perfecto was decidedly the best paper of all that we tried. It was pleasing in toning in printing, pleasing in every operation that was performed, and will be adopted by us, and continued as long as the quality continues what it is.

It may interest you to know that next to this paper, in convenience and results, was the Solio paper made by Eastman. Please send us four dozen 5 x 7, two dozen 6½ x 8½, one dozen 8 x 10 Perfecto paper. We shall be pleased to have this as soon as you are able to obtain it.

Yours truly,

G. W. HUNT COMPANY,

C. W. Hunt, *President.*

I enclose a print on "Perfecto" paper.

The Loucks Aristotype Company, Jamestown, N. Y.

Gentlemen:—I recently purchased the various papers in the market, the most of them from the Obrig Camera Company, in order to see which was the most available for our use. I enclose you a letterpress copy of my letter to the Obrig Camera Company, stating the results of that experiment, thinking that you might be interested to know.

Yours truly,

C. W. HUNT COMPANY,

C. W. Hunt, *President.*

The above C. W. Hunt Company is the largest concern of the kind in the country, and what they have to say may be relied upon.

World's Columbian Exposition,

Department of Photography

Harlow D. Higinbotham, Manager.
C. D. Arnold, Official Photographer.

Chicago, July 2nd 93

Thos. Scovill & Adams Co
Newport N.Y.

Gentlemen.

I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography World's Columbian Exposition.

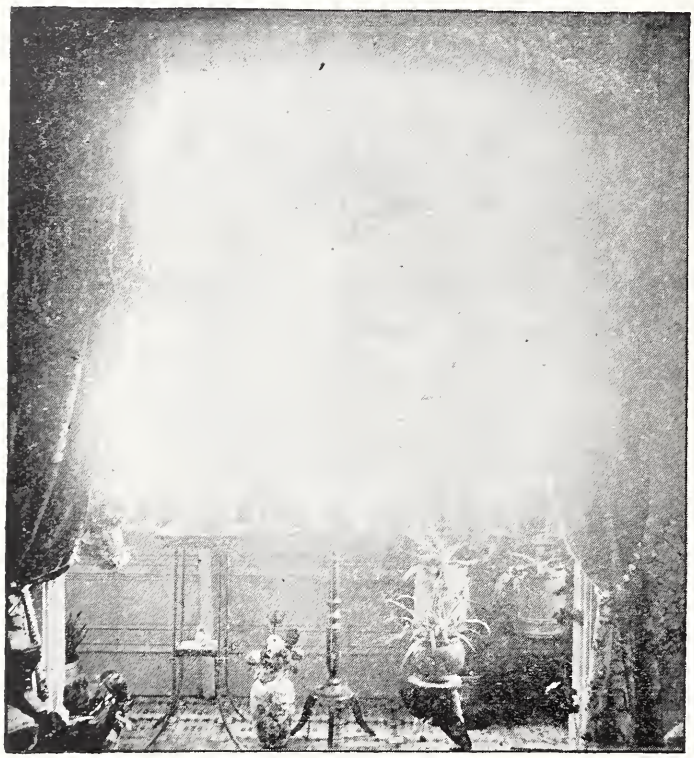
All goods for this work were purchased from the best workshops of the world, with a view of obtaining the best possible results during this year, and of obtaining the largest possible salvage after the Exposition is over. Your apparatus is, in my opinion the best made

Very sincerely
C. D. Arnold

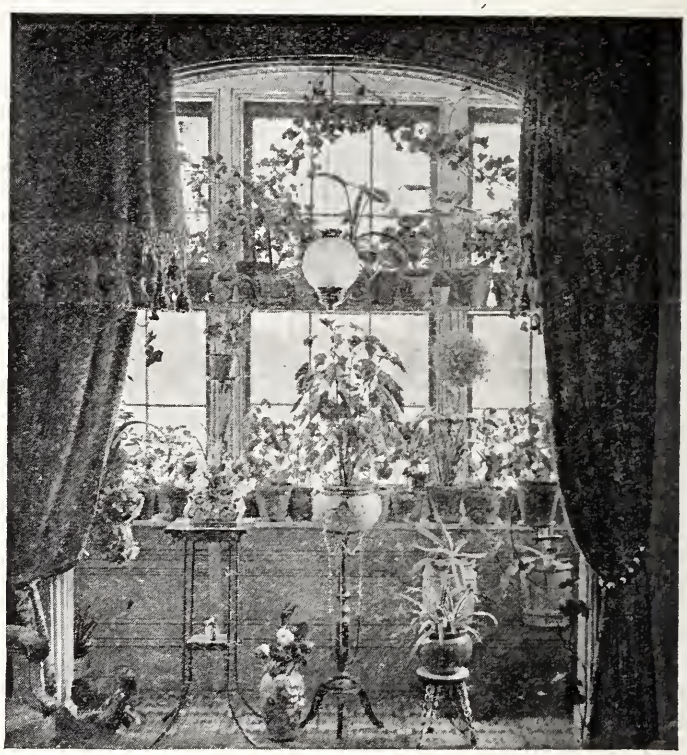
Wuestner's "Imperial Non-Halation" Plates.

LOOK ON

THIS PICTURE and ON THIS!



Reproduced from Negative on ordinary Plate.



Reproduced from Negative on "Imperial Non-Halation" Plate.

Both Negatives Exposed on the same Subject, one immediately after the other.

Note the Contrast!!!

PRICE LIST OF WUESTNER'S "IMPERIAL NON-HALATION" PLATES:

Dozen in Case.	Sizes.		Dozen in Case.	Sizes.	
39	$3\frac{1}{4}$ x $4\frac{1}{4}$	$0 55	12	8 x 10	$3 00
24	4 x 5	80	3	10 x 12	4 75
24	$4\frac{1}{4}$ x $5\frac{1}{2}$	90	3	11 x 14	6 25
28	$4\frac{1}{4}$ x $6\frac{1}{2}$	1 10	2	14 x 17	11 25
22	5 x 7	1 40	1	16 x 20	15 75
22	5 x 8	1 55	1	17 x 20	16 25
12	$6\frac{1}{2}$ x $8\frac{1}{2}$	2 10	1	18 x 22	19 50
12	7 x 10	2 70	1	20 x 24	23 50

For sale by all dealers in photographic materials.

THE SCOVILL & ADAMS CO., Trade Agents,

423 Broome Street, New York.



Gives Pure Whites Made in Pearl or Pense Gelatine Emulsion

Mr. C. E. HOPKINS, Brooklyn, N. Y. DAYTON, VA., April 18, 1893

Dear Sir:—I have been using your Omega Sensitized Paper for some time, and like it very well.

Yours respectfully, J. S. FISHER.

Mr. C. E. HOPKINS, Brooklyn, N. Y. JACKSONVILLE, FLA., Feb. 23, 1893.

Dear Sir:—The Omega Paper received in due time, and am very much obliged for your promptness. This is the finest paper I have had yet, and will undoubtedly use a large quantity. Yours works finer than any I have ever used, and shall do all I can to push it for you. Yours respectfully,

P. FREMONT ROCKETT.



Omega Cabinet Papers,

3⅝ x 5½ inches, $1.75 per gross.

OMEGA TONING SOLUTION,

10 oz., 30 cents, - - - - - 16 oz. 50 cents.

Used Extensively.

A Matt-Surface Paper, having no gelatine used whatever. Prints in the sun until the deep shadows appear; then is developed, washed and fixed. The prints have much the same appearance as Platinum, and the tone can be regulated from a brown to black.

Full instructions come with each package. Prints can be made by the professional or amateur alike without previous instruction. Paper does not deteriorate with age.

C. E. HOPKINS, M'f'r.,

52d and 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Send 25 cents for sample 4 x 5 package of either above papers.

What is the Latest in Photography in the U. S.?

THE CARBON PROCESS IS HELD IN HIGH ESTEEM IN EUROPE, AND THERE IS NO REASON WHY THIS THE MOST

PERMANENT, PLEASING and POPULAR

Of the older printing methods should not receive its proper recognition among the Photo. public.

PHOTOGRAPHY IN COLORS

Is now possible by using our TISSUE, and being a new process to the general public, we have full confidence that the fraternity will soon see its advantage in increasing their trade.

ALL OF OUR TISSUE is packed in a manner which will fully preserve it for years; it is of a smooth, even texture, and will not crack.

It is equally acceptable to the amateur as well as the professional.

We furnish full directions, fully describing the developing and transferring process, making it especially plain. It will be of interest to photographers, however, who care to examine into the merits of carbon, to call upon us and an experienced man will give full explanation and instructions, if its adoption is intended.

UPON RECEIPT OF TWENTY-FIVE CENTS we will send sample photo. in any color desired, with descriptive circular and detailed price list.

THE PHOTO. SUPPLY M'F'G. CO.,

52d to 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Our Declaration of Independence.

WHEN in the course of photographic events it becomes necessary for one manufacturer to take a separate and distinct position among other manufacturers in the trade, by reason of a certain combination, trust or agreement between these firms to control the price and terms of sale of photographic printing-out papers in these United States, it becomes necessary and important to photographers that they should know that we are not a party to, nor in accord with, any such compact and we hereby declare ourselves to be FREE AND INDEPENDENT of it.

If, therefore, you have been using our N. Y. Aristotype Paper (gelatine), or our Kalona Paper (collodion), the price of both being $1.70 per gross, cabinet size, and find that your orders for either of these papers are being filled with an article that costs you $2.00 per gross, you may feel assured that your dealer is in sympathy and acting with this arrangement of trying to force you to pay this price for your Aristotype Paper.

Will you consent to such an outrage and have this trust dictate what paper you shall use?

The following is a verbatim copy from a circular sent by some of the members of this combination to the photographic trade:

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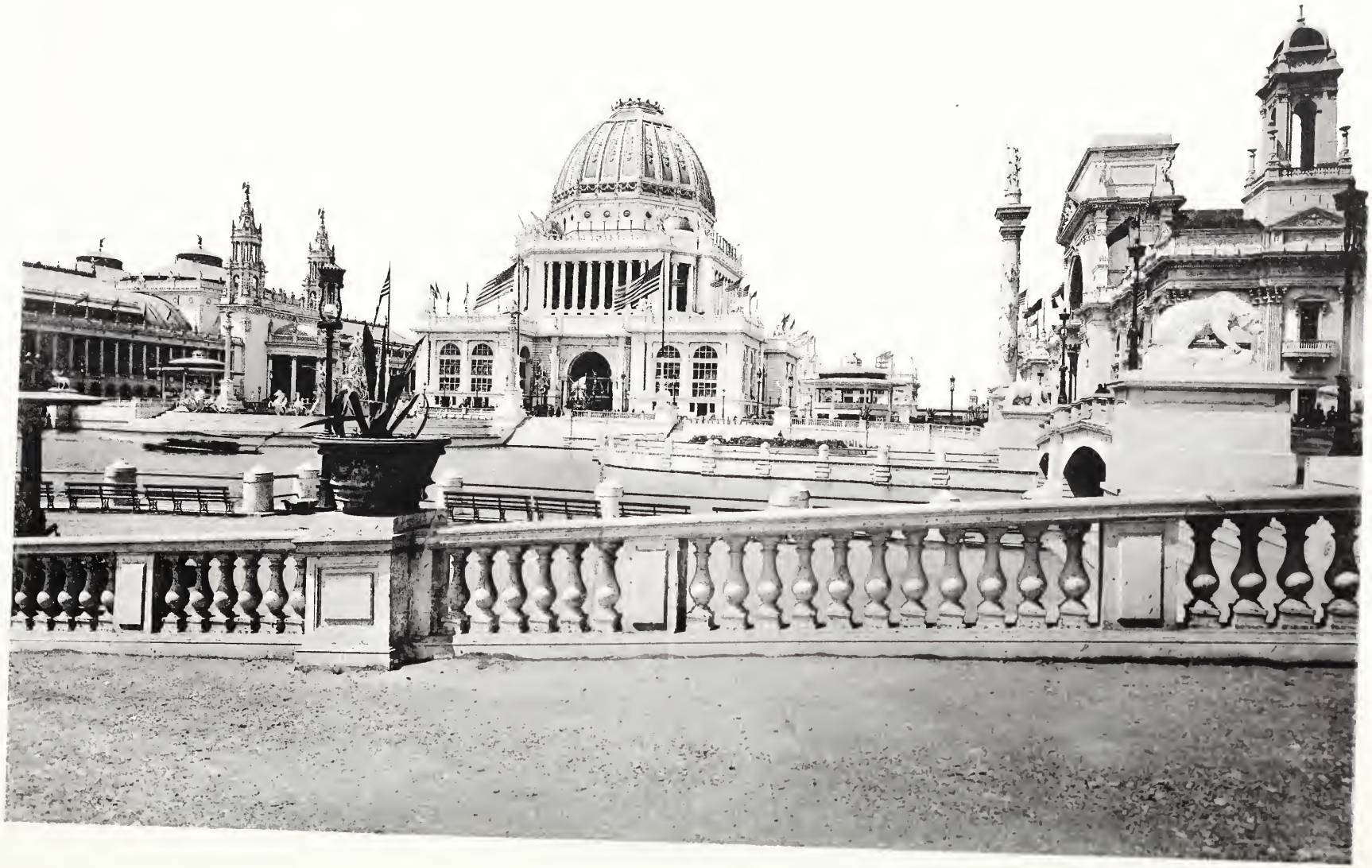
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FROM A COPYRIGHTED NEGATIVE BY C. D. ARNOLD, OFFICIAL PHOTOGRAPHER AT THE WORLD'S FAIR.

THE PHOTOGRAPHIC TIMES.

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OUR WORLD'S FAIR PICTURE.

WE take especial pleasure in presenting our readers this week with a photograph made in the World's Fair by the official photographer, Mr. C. D. Arnold, and specially selected for illustrating THE PHOTOGRAPHIC TIMES. It is one of the most beautiful views in the entire Exposition grounds, showing as it does the magnificent Administration Building in the "Court of Honor," as it is called, the beautiful Columbian fountain by Frederick Mac Monnies, and just enough of the surroundings to give the observer a good idea of the beauties of the place.

The Administration Building has properly been pronounced "The gem of all the architectural jewels ot the Exposition." It cost $435,000, which is greater than any of its neighbors considering its size. It occupies the finest position on the Exposition grounds, overlooking the Grand Basin and facing French's lofty statue of the Republic. Its gilded dome may be seen far out on the lake by day, and at a great distance from the grounds by night, as it is illuminated by electric lights every evening.

The entire "Court of Honor" is a marvel of beauty. The Grand Basin and Canals, lively with the swiftly moving electric launches and graceful gondolas; the artistic bridges spanning the canals; noble statuary at every hand, and the impressive fronts of many of the larger buildings, together make the place a veritable paradise for the photographer.

Our photograph is from an 11 x 14 plate made by Mr. Arnold with his American Optical Co's. camera with the Swift lens on a Cramer plate. The picture is a copyrighted one, as indeed, are all of Mr. Arnold's photographs, and will be shown in no other photographic magazine. We congratulate our readers and ourselves on obtaining this fine photograph of the World's Fair.

HELIOCHROMIC EXPERIMENTS.

THE most recent researches in heliochromy made by Monsieur de Saint-Florent have been communicated to Monsieur Davanne and published in *Paris Phot.*

His first experiments were based upon Lippmann's interference method, but of a very simple nature. He exposed a bromide of silver gelatine emulsion plate under a colored glass diapositive (lantern slide) to direct sunlight for fifteen to sixty minutes, fixed the plate in strong hypo solution and washed it without previously developing it. A ray filter of orange-yellow glass screens the colored diapositive during exposure.

After thorough washing, the reproduction plate shows the colors of the original but faintly, but they disappear entirely after the plate is dry. Colors are more lively, and the sensitiveness of the plate is much increased, when it is bathed before exposure in a 10 per cent. solution of nitrate of silver, to which a goodly amount of alcohol has been added. Without being washed these plates retain sensitiveness for a long time. But when to 100 c.c.m. of this bath from one to two drops of nitrate of mercury is added, sensitiveness is much higher, but plates prepared with this solution are not durable.

The colors obtained are, when seen by transmitted light, complimentary to those seen by reflected light.

The author particularly mentions that he did not employ a mercury mirror with this method, and thinks that the incidental light rays are probably reflected from the back of the film, not from the glass plate.

The author has also attempted to reproduce colors by direct exposure in the camera. By enormously long exposure he has had limited success, but the colors were but very faint.

Another experiment has been made with ferric salts. To eliminate all silver salts from an ordin-

ary bromide of silver gelatine plate he fixed in hyposulphite of sodium solution in a bath of iron, recommended long ago by Poitevin :—

Water	1000 c.c.m.
Ferric chlorid	10 grains
Tartaric acid	5 grains

After thorough washing and complete drying, the plate is exposed for a sufficiently long time under a colored glass diapositive, and afterward washed in lukewarm water. The portions of the plate exposed to light have become soluble, and by washing these out a positive picture is produced.

After quickly drying the colors of the original, red, yellow and green are faintly visible, violet and blue scarcely. To see the reproduced colors well, the plate should be viewed at a certain angle toward the light rays, the same as with Lippman's heliochromics.

The author is of opinion that better results might be had with the application of mercury mirrors.

CELLOIDIN PAPER.

WRITING in the *Deutsche Photographen Zeitung* Herr Busche speaks in high terms of the supremecy of collodion or celloidin paper over all other methods of silver printing. Certainly it possesses many advantages. It gives all the detail of the negative, it is easily manipulated and burnished in the ordinary manner. Finally, and a fact that is of extreme importance, it is far less susceptible to moisture and atmospheric influences.

To make the collodion paper requires but little more throuble than silvering and fuming albumen paper.

Herr Busche's formula is as follows :

No. 1.	
Ether	400 c.cm.
Alcohol	400 c.cm.
Pyroxyline	25 grammes
Castor oil	45 drops
No. 2.	
Alcohol	60 c.cm.
Citric acid	5 grammes
No. 3.	
Alcohol	60 c.cm.
Calcium chloride	5 grammes
No. 4.	
Nitrate of silver	32 grammes
Water	15 to 20 c.cm.
Alcohol	60 c.cm.

Dissolve the silver nitrate in the water, using a little heat, and add the alcohol. If there is a slight tendency for the nitrate of silver to crystallize out, the vessel should be placed in warm water. The order of mixing is as follows : The citric acid solution (No. 2) and the chloride of calcium solution (No. 3) are mixed together, and this mixture is added with agitation to the collodion (No. 1). The operator now works in a dimly lighted place and gradually adds the silver solution (No. 4) to the collodion mixture, shaking well after each addition. The emulsion should be filtered through fine felt or other suitable material. Agitation of the emulsion is required about a quarter of an hour before use in coating the paper.

In coating we prefer to use a double frame-work, so arranged that a sheet of paper clamped between is stretched perfectly taut and having the edge of the frame all round it. In this manner it can be coated like an ordinary piece of glass by merely pouring the emulsion on and moving it about until the whole paper is covered. The superfluous solution is then poured off. Celloidin paper should not be dried at too high a temperature, nor the reverse; if dried slowly the paper yields flat results.

"BRAGGADOCIO."

Anthony's Photographic Bulletin of September 9th, 1893, contains the following editorial note :

We note in *Photographic Work* for August 18th, a paragraph to the effect that THE PHOTOGRAPHIC TIMES of this city will contain the only picture of the World's Fair that will be permitted to be reproduced in any photographic magazine. It is improbable that Americans will be deceived by a statement of this kind, but for the benefit of our transatlantic readers who might be misled by "braggadocio" of this kind we would state that we have planned, not *one* only, but a *series* of World's Fair pictures as illustrations for the *Bulletin*, which will continue to give, as in the past, the best of everything photographic that is obtainable.

As this note would give an entirely false impression if allowed to stand as it is, we take the space to set the matter right.

The paragraph referred to in our esteemed English contemporary, *Photographic Work*, was not, it is true, quite complete. It should have stated that the picture to be reproduced in THE PHOTOGRAPHIC TIMES (and which we have the pleasure to present to our readers this week) was from a negative by the World's Fair Official Photographer, Mr. C. D. Arnold. Of course, any one who pays the required $2 can obtain a permit to photograph in the World's Fair grounds with a *four-by-five* (or smaller) camera, and *without a tripod.* And of course photographs thus obtained can be reproduced in photographic or other magazines. But only the official photographer, Mr. C. D. Arnold, is permitted to use a larger-sized camera and

tripod; and, as his photographs are all copyrighted, no one can use them for illustrative purposes without his permission.

Our frontispiece this week is from one of Mr. Arnold's copyrighted photographs. It is from an 11 x 14 plate, and was especially selected by Mr. Arnold himself for use in THE PHOTOGRAPHIC TIMES and in that magazine alone, the *Bulletin's* modest statement that it "will continue to give, as in the past, the best of everything photographic that is obtainable" notwithstanding. This particular photograph is not "obtainable" by *The Photographic Bulletin*, and this statement is not "braggadocio," but plain fact.

The *Bulletin* can only give its readers 4 x 5 or smaller-sized photographs *made with a hand-camera*, though these may be enlarged, of course, if they are particularly good. We ourselves expect to give a page of such photographs, made by Mr. L. C. Bennett with his 4 x 5 triad camera, in the course of a few weeks, and we think our readers will be pleased with them. But, of course, as every photographer knows, such photographs cannot compete with those made by as skillful a photographer as is the official photographer, with a large-size camera on a tripod.

EDITORIAL NOTES.

WE would remind our readers that the time for entering our first quarterly competition will expire at the end of the present month. We shall be glad to receive the entries as soon as possible, so that there shall be no delay in the date of judging. For the benefit of those now enjoying their vacation with the camera or contemplating doing so, we will state that the next competition will be a landscape one with or without figures. Pictures may be of any size or shape. Entries will close on the last day of December.

IN our last issue we stated our regret at hearing of an accident that had befallen Mr. Birt Acres.

We now learn that this gentleman was experimenting with sodium for the production of hydrogen, and was using about sixty grains wrapped up in fine gauze to prevent the gas from becoming ignited. But as soon as the sodium touched the water a terrific explosion ensued of sufficient force to tear a large sheet of iron that the experimenter held in his hands.

We are well aware of the fact that sodium ignites when brought into contact with water. Indeed we have performed the experiment very many times, but were entirely ignorant of the fact that such ignition was liable to be attended by explosion, which (under certain conditions) is apparently the case, and shudder at the thoughts of the narrow escapes we have had.

THE latest use to which photography has been put is in the calculation of the depth of water to which light penetrates. Sensitive plates have been sunk and exposed at various depths. It was found that at about 550 feet the rays of light from the sun had but a feeble effect upon the sensitive film, not more in fact than on a clear but moonless night.

M. OMMEGANCK recommends the one-half per cent. solution of borax for the thorough elimination of the hyposulphite of soda; the prints are afterward washed to remove the borax.

DR. LIESEGANG has been continuing the experiments of Schützenberger, Eder and others in the development of photographic plates by electricity. He employs two vessels, one being of porous material. These are filled with a solution of bisulphite of soda, the porous vessel being placed in the other. A current of electricity is passed through by the aid of two platinum electrodes, the exposed plate being in the vessel containing the negative electrode. The image develops of a brownish color, but the deposit is considerably reduced in the fixing bath.

DR. MÉNIERE advises the following method of removing fog from negatives, whether it be red, yellow, green or dichroic: Soak the negative in water for about five minutes, and then immerse in a solution of three parts of bromide of sodium, three parts of bromine water and one hundred parts of water. In this bath it should remain for about ten or fifteen minutes. The bleached image is then washed and dried, and then re-developed with an amidol-sulphite developer.

THE *Optician* is an English weekly and contains some remarkably well-written matter upon the subject of photography. Speaking of the best substances for use in preventing reflection of actinic light in the interior of cameras, lenses, etc., it says: "The question suggests itself whether optical black is necessarily the best lining—better than a lining of some red pigment, for instance—to be given to the interior of a photographic camera or lens. One naturally associates the almost non-selective absorptiveness of lamp-black with the fact, proved by chemical considerations, that the molecule of carbon is exceedingly com-

plex. But, on the other hand, there seems to be no obvious reason why the absorptiveness of some red or yellow pigments for the rays which act on certain photographic compounds may not be even greater than that of lamp-black itself."

THE *Photo American* for September repeats the ridiculous assertion made in a foreign contemporary that a certain article in THE PHOTOGRAPHIC TIMES, signed by Mr. Woodbury, was not original with him. Curiously enough, in the very same issue of *The Photo American* an article taken from THE PHOTOGRAPHIC TIMES is made to appear as written by the editorial staff of *The Photo American* without the slightest reference as to its true source.

The article we refer to is the one on the Antiquity of the Lens, reprinted on page 329 of *The Photo American*, and originally appearing as an editorial on page 33 of the June 30th issue of THE PHOTOGRAPHIC TIMES.

AT the last exhibition of the Photographic Society of Great Britain, the pictures that attracted the most attention were some large-sized portrait studies by Mr. J. E. Austin. Not only were these pictures of considerable artistic value, but they were taken with an ordinary spectacle lens, costing about eight cents. Of course, with a lens of this description there is a considerable difference between the chemical and the visual foci. Dr. Eder, in a recent number of *Photographische Correspondenzen*, states that the ordinary crown glass spectacle lenses have their chemical focus one-fiftieth within the visual when working at their equivalent focus. He gives the following tables for the corrections for different distances:

STEINHEIL'S TABLE.

I.	II.	I.	II.	I.	II.
a	Δ	a	Δ	a	Δ
100	1.020	9	1.26	2.7	2.45
90	1.022	8	1.30	2.6	2.56
80	1.025	7	1.35	2.5	2.69
70	1.029	6	1.43	2.4	2.84
60	1.034	5	1.54	2.3	3.01
50	1.040	4	1.75	2.2	3 23
40	1.051	3.5	1.92	2.1	3.49
30	1.069	3.0	2.20	2.0	3.81
20	1.102	2.9	2.23		
10	1.230	2.8	2.35		

In column I., a are the distances of objects expressed in units of the focus; in column II., Δ is the difference between visual and chemical foci, by which numbers the focus must be multiplied.

Example: It is desired to photograph a sitter with a spectacle or monocle lens of 15 inches focus, the distance between sitter and camera being 7 feet 6 inches.

$$7 \text{ feet } 6 \text{ inches} = 90 \text{ inches.}$$
$$\therefore 90 \div 15 = 6.$$

Now we know that the difference at the equivalent foci is $\frac{1}{50}$; then $\frac{1}{50}$ of $15 = .3$ inches.

Against 6, in column a, we find 1.43, therefore we multiply .3 by $1.43 = .429$ inches, or practically half an inch.

IF any of our subscribers have any photographs of exceptional interest or artistic value we shall be very glad to see them, and, if possible, to reproduce them in our magazine for the benefit of our subscribers.

IF the duty is removed from albumen paper, as it unquestionably will be, there is no doubt, whatever, that a great many photographers who at present are using the aristotype paper, may return to the old "standby"; for the paper, of course, can then be supplied to them much cheaper.

IN *La Nature* M. A. Fraissinet gives a few particulars regarding the great photographic chart of the heavens now being undertaken. It will take from five to six years to produce the negatives alone. The measurements of the various stars, a delicate task that will be undertaken by Mlle. Klumpke, assisted by four other ladies, will require twelve more years. The result will appear in forty volumes of 1,000 pages, every page illustrating the position of fifty stars.

THERE are few, perhaps, who are aware of the amount of labor and expense entailed in giving with each issue a high-class pictorial supplement, such as those presented with each number of THE PHOTOGRAPHIC TIMES. Some time ago *The British Journal of Photography* with loud flourish of trumpets announced that it would from "time to time" give full-page pictorial supplements. Three months have, however, elapsed since the issue of the first, and, except for the usual convention group, the performance has never been repeated. We can only imagine that the expense and labor has been underestimated.

SINGLE ACHROMATIC LENSES.

In olden times, when photographic plates worked but slowly, it was absolutely necessary to give very long exposures when working with single achromatic lenses sufficiently stopped down to secure sharp pictures over the whole plate To fully expose a wet collodion plate with a 23″ focus single lens, stop *f*/32, the subject being an open landscape or an architectural view, required from 45 to 65 seconds ; for reproductions made in the atelier, the exposure had to be quadrupled and more, and for photo-mechanical work with electric light half an hour and longer was required to get a well-timed plate. All this has changed with the introduction of more rapid plates and those highly energetic developing agents of which amidol should pre-eminently be mentioned. With these enormous facilities at our command, the single achromatic lenses have come to the front again, mainly because of their correct delineation, their wide field of vision and depth, and their very low price when compared with aplanates or rectilinear objectives of the same focal length and approximate capacity Renowned portrait photographers use these lenses now for certain classes of work, the old "Chevaliers" and "Lerebours" have been taken from the clout again after a rest of many years. Friedrich Müller, of Munich, makes all his large portraits with single achromatic lenses of long focus; "Haukh," of Zurich, uses such lenses, constructed by Suter, of Basel, for his naturalistic life-size portraits, described some time since in these columns, and many of our American first-class portraitists have relegated large portrait objectives to oblivion, and work with the reversed front lens of a portrait combination.

What is said of lenses producing those huge pictures (some of them we have seen in Chicago), may be equally applied to those capable to cover but small plates, lenses of short focus of 5, 6, or 8 inches.

The Waterbury series of lenses of this construction has held its own ever since it was introduced, and has always been considered of excellent quality. The smaller, like the A, of but 6 inches focus, and the B of 10 inches, when stopped down to *f*/25 is capable to produce an instantaneous view under average conditions of plate light and atmosphere, and the A is for that reason very much employed for making stereograms of moving objects. With the B stopped down to *f*/20 and a rapid plate, portraits as sharp and well defined as if made with a more costly objective are often made, although a portrait lens, with large stop, must necessarily be more luminous than the single lens.

Flare spots are occasionally reported to have occurred with Waterbury lenses, but invariably



Photograph by Miss Jane Grey Stevenson.

MADE WITH A WATERBURY "A" (SINGLE) LENS.

has the defect been found to be due to carelessness or want of attention, not to the construction of the lens.

Much has been said in favor of the Waterbury lens, and it exceeds indeed all other lenses of similar construction. A scientist possessing one of the A kind has often expressed in our presence that he would not part with it for a hundred dollars.

We annex with our remarks a little picture made by a lady Chautauqua student, with an A lens, upon a Wuestner non-halation plate. Its sharpness, depth, detail and brilliancy will verify what we have said, for it compares exceedingly well with other similar pictures, made with costly objectives.

A FEW NOTES.

NO PHOTOGRAPHER should attempt to do the operating, printing and retouching. Each is a trade to itself. Each must be mastered separately. Very few good operators are good retouchers or printers. He should know enough about each branch to tell when it is well done, or where to place the responsibility in case of failure.

The operating room should be in full charge of the operator, and he should be held strictly responsible for the work produced therein.

The curtains should be arranged for convenience. It is a good plan to have an extra set of black satine curtains to cover the entire skylight, and side light so arranged on wires that the light is under the control of the operator.

The operator must know his light by heart to get the best results. A scrap-book filled with cuts from magazines and pictures from the photographic journals is a good educator. The lighting can be studied by the use of a plaster bust and in many other ways that will readily suggest themselves.

The retouching should be done by a competent retoucher. There is no excuse now for not having it well done.

And finally the printer must do her part well.

The vignetting must be carefully studied. Some judgment must be used, even in this day of patent vignettes and vignetting paste.

One of the most difficult things to decide is what brand of paper to use. The only answer is, use the best—that is, what suits each individual printer the best.

J. R. Swain.



NIAGARA CATARACTS AT EVENTIDE. By Walter E. Woodbury

POSING AND ILLUMINATION.

[Read at the World's Congress of Photographers.]

IT has devolved upon me to prepare and read before this assembly of artist photographers a paper on posing and illumination in the photographic studio.

It is a pleasing duty, as portrait photography has been the delightful occupation that has claimed my energies for many years of the past, and I hope the pleasure will still be mine during many years of the future.

The subject of posing and illumination in the photographic studio is more nearly related to the artistic than to the scientific part of photography, and therefore there will naturally be a wider diversity of thought and opinion on this subject than might be expected concerning the more scientific and therefore more exact branches of our profession such as are practiced more particularly by the dark-room worker or the printer, although



Flashlight Photograph by G. Valentine & Sons, Dundee

A SCOTTISH CROFTER'S HOME.

there can be no doubt that each of these is successful in accordance with his knowledge of art principles and his ability to apply them in his work.

The successful photographer may well claim to be an artist, for the highest product of his genius must be the exquisite flower of the combination of the purest and most cultivated taste and the highest skill.

The artist, however, they say is born, not made. Nature must first have endowed him with gifts that would have constituted him an authoritative connoisseur in all art matters without having studied either line or rule. The endowment of artistic taste, however, does not carry with it the ability of mechanical expression ; taste is of the intellect, inward; mechanical expression is of study and practice, outward.

Taste is God-given ; it may be improved by cultivation but cannot be acquired by study.

Manual skill is only acquired by long and generally painful exertion and only retained by constant practice.

The artist, therefore, in whatever line (whether as the musician who charms and enraptures us with heavenly sounds or the painter who enchants us with harmonious colors or the photographer who delights us with beautiful effects of light and shade), is one who has been impelled to acquire the manual dexterity or skill to give outward expression to the beautiful in sound, or color, or light, whose origin is from within.

All photographers may not be artiststs in the highest sense, because art is inherent, not acquired ; but that which a man has may be improved by study and observation of the works of artists who have made for themselves a name and reputation as such.

All photographers may and should be students eager to find out for themselves every means that may enhance the beauty or value of their work.

At no time in the history of art has the study of art principles in the beauty of form, color and shade been so easy or the opportunities so numerous as at the present time, the near ending of the century.

Posing and illumination under the photographer's skylight or in the painter's studio must be governed by the same rules, and these rules or laws have so frequently been published in photographers' journals and have been so frequently commented on by eminent photographers for the instruction of their fellow-workers that it appears unnecessary on this occasion to occupy time by any detail discussion thereof. I would, however, remind you that you have the works of H. P. Robinson, of Edward L. Wilson, and many other eminent authorities equally accessible, and I would strongly recommend the study of the same and the application of their ideas in your daily work in your studios.

The time is now past when any photographer poses and illuminates any subject without study and consideration.

It is not the rule now to seat your subject carelessly before the camera and fire away, considering that any outcome must be a likeness and therefore good enough. The light now furnishes the modeling and the lens cuts it in ; therefore the handling of the light and the use of the lens must receive the study and practice that are necessary to the skillful use of the pencil and the brush.

If the artist photographer has any appreciation of the line of beauty, he will easily understand that in posing his subject under the skylight he should develop or bring into prominence the curve rather than the angle, and that the centre of gravity should fall within the base.

He should understand that symmetry and proportion must characterize his work, whether of the one or of the many, the single figure or the group.

He must understand that in composition lines must have supporting lines when not perpendicular, and that a picture is unsatisfactory that carries no idea of firmness and support.

The artist having these elementary principles constantly in mind will practically make a study of each face and form that comes under his studio light, viewing the subject or model from every direction and by every method of illumination; studying the face by front, three-quarter or profile view, both toward and from the light; and also by the various arrangements of the light, such as broad Rembrandt or shadow lighting, or by any recognized method of lighting that the studio will admit of, that may impart character, form or piquancy to a face or figure that may perhaps lack one or all of these graces when in repose, while abundantly interesting when animated by conversation or engaged in the common affairs of life.

Every face will present some one view that will be more pleasing or interesting than any other. The long, thin face may perhaps be more pleasing from the front; the broad face may look better at the three-quarter view; one view may suppress an angle and develop a color while an inconsidered pose might bring out the reverse.

The tilting of the head to one side or the other, the raising of the chin or the reverse, may give piquancy to this one and picturesque effect to the other.

In this manner he will decide on that view that gives the most pleasing outline, and that method of illumination that gives boldness and brilliancy where features are small or insipid, or that tones down the harshness of a too rugged face without losing altogether its characteristic quality, for it is well to keep in mind that an indication of character adds as much to a portrait as does action or life to a pose, avoiding always the commonplace. Tameness in expression, pose or lighting is contemptible, and will rob even the finest execution of every charm; at the same time an evident straining for effect in pose or lighting is objectionable to any refined taste and should be avoided as strenuously as the other extreme, however true it may be that the daring innovator may sometimes produce charming effects that may not come strictly within the approval of a too cultivated taste.

In my opinion a resort to ultra effects is only justifiable in cases where the face and form of the subject are not amenable to ordinary methods, and when it may be desirable or profitable to experiment.

When posing a single figure in either full or three-quarters, certain accessories may be used with good effect; but care should be exercised in making the model the central point of attention; everything should be subservient to the portrait.

The three-quarter length will always be better without accessories unless in a sitting or leaning position, in which case the proper support will necessarily be provided.

Groups of two or more require the exercise of common sense and a knowledge of the capabilities of light and lenses. In form the group should be as symmetrical as may be, with dark complexions and dresses placed next the light; and in large groups more attention should be given to the general than to individual effect.

The best photographic light is received from two windows—a top window or skylight joined to a side window, which shall reach to within three feet of the floor of the studio.

The dimension of the skylight should not be less than ten feet square if space permits, but preferably larger if convenient, the pitch of the upper light only enough to easily and safely carry the snow and ice of winter and shed the rain of summer without leakage.

The quality of the top light is softness and delicacy of detail, but with two heavy shadows beneath projection.

The quality of the side light is vigorous harshness with abrupt lateral shadows.

The one corrects the other to any extent desired, so that having a top and side light properly shaded with movable curtains, every description of face may be so lighted as to make prominent all the good points and to lessen or entirely suppress all that is not desirable.

By a proper arrangement of the top and side lights we can give boldness and prominence to small or weak features. We can, by similar means, soften and refine coarse and rugged faces.

By seating the model facing the light and at a suitable distance therefrom it is possible to remove to a great extent the appearances of age; the wrinkles and crows-feet are lighted up, but cast no shadows.

In fact, it is possible to change the shape of the face of any subject to a great extent by judicious management of the light.

Having a good light, use all of it that may be used with advantage according to the method of lighting adopted for that particular subject.

Many photographers shade their lights down closely and give long exposures; but the preponderance of opinion among artists of recognized ability is in favor of using all the light the model will bear, and make shorter exposures comparatively, thus obtaining bolder modeling, finer gradations and more brilliant effects, while not losing the softness that is characteristic of all really first-class work.

I have stated that time of exposure has much to do with the quality of the negative; it is also very true that the character of the dry plate has an important bearing on the resulting negative. I have always found that thinly coated plates invariably had a tendency to make negatives whose printing quality tended to contrast because of the fact that the shadows were always thinner than they looked. Such plates require longer exposure and the subjects should be more evenly lighted than when plates of a thicker coating, although of even sensitiveness, are used.

The effect of the lighting of the subject will not be the same on the sensitive plate as it is on the retina of the operator's eye; therefore the photographer by closely observing the action of the lens will learn to see photographically, or to understand, the precise effect on the sensitive plate of any method of illumination he may employ for his subject.

Also he must understand that the time of exposure will greatly modify the effect he may be desirous of obtaining.

The subject should be posed well out under the light, and generally at a proper distance from the background to get what is called atmospheric effect.

Then if the whole figure or head is well lighted a proper exposure will give the effect of daylight illumination, while a short exposure will produce the effect of artificial lighting.

By daylight illumination I mean that the figure or head will be fully lighted with soft modelings and easy gradations from high light to transparent shadows, while by artificial illumination the lights are chalky or flatted, and the gradations are abrupt to heavy shadows. I therefore consider that it is safer to err on the side of over-exposure than to under-expose, although I have known eminent photographers to lean constantly to the short exposure for picturesque effects.

Picturesque effect of pose and light should be aimed for in all photographic portraiture, and a thorough knowledge of the peculiarities of light and lens should be acquired by the artist so that his judgment may ever readily arrive at the proper methods of arrangement of the light and the exposure for lens to produce the effects desired for any face or figure with as little delay and hesitation as possible.

This promptness of decision will secure the confidence of the sitter and facilitate matters in a large measure, the natural result being more patrons, enlarged business and increased profits. That such may be the good fortune of all who have listened to my views on the subjecr under discussion is the sincere wish of your friend and fellow-laborer.

E. M. Estabrooke.

PHOTO-MECHANICAL PROCESSES IN ENGLAND—HALF-TONE BLOCKS FOR TYPE PRINTING.

[World's Congress of Photography.]

To England must be given the honor of being the home of photo-mechanical photography, and a casual glance at the publications using photo-blocks will show that good use is made of such productions. The gauze used by Fox Talbot in 1854 has given way to perfect ruled screens, which, as a general rule, are made in America.

The old wet-collodion process has no rival for the production of the grained negatives, and at present there is little chance of having any. The prints on the metal are usually made in bitumen, some operators using bichromated albumen, especially in dull weather, but this requires great skill, both in the preparation of the film free from dust as well as in the subsequent rolling up with a sufficiently strong ink resist. Printing the ink image on prepared paper and subsequently transferring to metal is also practiced, but this method requires great lithographic experience to get a good image. The metal used is generally zinc, but some firms use copper.

Line Blocks for Type Printing.

This branch of photo-mechanical work is nearly all done by the etching process, the swelled gelatine method being worked by one firm only, who, however, turn out splendid results. The wet-collodion process is here paramount for making negatives, the silvered mirror being used to get the necessary reversal, one or two firms only adhering to the method of turning the plate in the dark slide. Stripping the film is very seldom practiced; when a number of small images are to be put on one sheet of metal separate exposures are made, the metal plate being resensitized for each print.

Line blocks are produced very cheaply, but there is a constant demand for them; hence they pay in spite of the low price. They are used by the square yard in halfpenny papers as well as in very high-class ones.

Photo-Lithography in Line.

Photo-litho transfers are getting into very general use all over the country; firms who a few years ago would not hear of such a thing are now using large numbers of them; but there is one drawback in the difficulty in obtaining good transfers, so few operators know, or will be told, how important it is to keep the ink spare instead of thick, especially in fine work.

The best method of inking up these transfers is to use a glue roller charged with transfer ink thinned with turpentine, a method which I had the honor of first introducing; and as it is simple, easy and efficient, some operators prefer to use the old and clumsy methods of rubbing over the ink with a sponge, or else ink up a stone, place the exposed print upon it and pull through the press. The sponge method yields heavy and uneven transfers, the inked stone gives rotten lines and dirty whites.

In chromo lithography, photo transfers are much used when different sizes of one subject are required; then one drawing or set of stones only are prepared; then from each stone a black pull is taken; this is photographed, put on the stone and printed.

Photo-Lithography in Half-Tone.

This process is not very extensively practiced, but where it is, very fine work is produced. The best work is done by transfer from a collographic

plate, the necessary grain being obtained by using either ferro-cyanide of potassium or calcium chloride, or both.

Collotype.

This process has been very extensively taken up within the last three years, but there are only about four firms who turn out really good work, simply because the process is starved in initial stage, viz., the negative; money is lavished on machinery, etc., good wages are paid to plate-makers and printers, but any one is considered capable of making a dry-plate negative. Now and again by a fluke a good collotype is turned out, but as for 90 per cent. it is stale, flat and unprofitable.

This process is essentially a photographer's process, and only those who are capable of constantly making good negatives can insure good collotype prints; the process is simplicity itself, giving a good negative, but not without.

Photogravure.

England was a short time back very backward with this process, simply because of the difficulty of getting men capable of producing the prints from the intaglio plates; now, thanks to the pluck and enterprise of firms like Annan & Swan (London), English photogravure prints hold their own in comparison with any.

Some firms use the Talbot-Klic process, in which the grain is obtained by dusting with finely powdered resin, the resist being a carbon negative, *i. e.* a pigmented gelatine print from a transparent positive, mounted upon the copper-plate and developed thereon.

Other firms use the method of dusting over a gelatine image with a resin in fine powder, and when the image is dry obtain the grain by dissolving out the resin, and then obtain an intaglio plate by electrolysis.

Others again prepare gelatine films with plumbago, etc., of varying degrees of coarseness, which, when exposed to light and developed, yield a granular surfaced image, from which, by the electrotype process, a printing plate can be obtained in copper or steel.

Taken altogether, England has no cause to be ashamed of her photo-mechanical work, and it does not require any great stretch of imagination to say that in the future this satisfaction will be maintained.

W. T. Wilkinson.

Manchester, England.

WINTER PHOTOGRAPHY IN THE ALPS.

[World's Congress of Photographers.]

Although it is now twenty years or more since winter visitors first came to the Alps, few photographs have been preserved which render faithfully an Alpine valley in winter. The subjects ready to hand are varied and beautiful, yet somehow one seldom sees first-rate photographs of these high-lying districts under snow.

Those who have so kindly asked me to prepare this paper, have greatly over-estimated my capacity for telling you some new thing. Still, bearing in mind the fact just referred to, it is evident that few persons have made a study of landscape photography at that season in the Alps, and thus, perhaps, the experience of one who has worked in that direction may be of some interest.

Those taking up this branch of their art, are usually handicappped at the start by their belief in an article of faith—and of little else—laid down by the majority of English photographers, who declare that snow should never be photographed in a bright light. I dare say that in your sunnier climate, which must offer many more opportunities for experimenting in winter photography than does that of Great Britain, you have already discovered that brilliant sunshine is essential to the best results. But in case any among you still hold to the unsound maxim, I would ask him to bear in mind exactly what snow is; that it is uniform in color, almost smooth of surface, and on dull days without distinct outline against a gray sky. It must therefore be built up, so to speak, and modeled into that miracle of fairy delicacy and lightness which, under favorable conditions, it may become. We can have it at its best by working with suitable light at suitable hours, and now and then calling to our aid one or two artificial but inoffensive contrivances. At mid-day in winter the light falls too directly on the subject; the lace-like tracery with its system of innumerable tiny snow crystals obtains no relief against the white robe, standing hard and stiff around rock and chalet. But go early in the morning or late in the afternoon and note the change. You will find in the long, soft shadows, a thousand exquisite half-tones. See how the highest and nearer lights are broken, and broken again by the thin veil of surface crystals, each with its perfect modeling, its tiny shade throwing up its starlike form. Look at the rounded, billowy flow of the snow where, half in sunshine, half in shadow, it sweeps around and over the inequalities of the ground. If there has been a mist, however slight, during the night, a fretwork of hoar-frost will

cover all, and will complete the materials for as fine a subject as you can wish for.

You may find it desirable to use, in addition, the artificial contrivance to which I referred, and by shoveling some of the snow, or trampling out a track, break up any portion of the picture where the uniformity is too great.

And now, having placed your subject under the most favorable conditions, what is the best way of photographing it? My own experience leads me to think that slow plates are far the best, so that when used with a small stop, the exposure can be as prolonged as possible. I have always used Wratten & Wainwright's "Ordinary" plates for this purpose, with one of Ross's Portable Symmetrical lenses, and with the smallest stop. I give under the conditions of light just described an exposure of two seconds. In developing I am careful to work up the plate very slowly and to carry the development very far, and when I have finished I expect to find a range of density from excessive blackness to clear glass; but though there must be no mistake about the quality of these two extremes, there must be very little of either. It is on the variety of the half tones that the success of the picture depends, and it is for this reason that in photographing snow, correctness of exposure is of such prior importance; and therefore a slow plate, allowing of more laxity in exposure than a rapid one, is far easier to work with. A plate under or over exposed can never, however skillful the development, give a perfect result if the picture is of a snow-covered landscape, as the half-tones must suffer from the error. I have used the iron developer, eikonogen, and pyro and ammonia, and for snow, have obtained the best results with the latter. I may add that when developing photographs of large moving figures, taken in winter in the Engadine, on our skating rink, I get the most successful pictures by allowing the plate to flash up at once under eikonogen and continuing the development until the principal object is hardly visible when viewed by transmitted light. For studies of this kind, I have had the best results with Lumière plates.

But I have digressed from my subject—because, probably, I had so very little to say. I have now all but done; but before concluding I should like to draw your attention to the fact that very beautiful effects can be obtained in Alpine photography by facing the camera to the sun, which of course should be just *out* of the plate. For most subjects (water and clouds excepted) such lighting is rarely suitable, at any rate in so extreme a form, but with snow I have obtained most charming studies in this manner.

In response to so great a compliment as has been paid me in requesting me to write this paper, it would have been ungracious on my part to have refused, but I must ask you to forgive the very inadequate manner in which I have responded, for I know but little of the technical side of photography, and of the practical side am but self-taught, by my love of an art, the beauty of which has always warmly attracted me.

Elizabeth Main.

HOTEL KUHN, ST. MORITZ, Engadine, Suisse.

ON POSITIVE PROCESSES WITH CHROMATES.

PHENOMENA observed with chromates and gelatinous preparations do not permit of conclusions regarding preparations without gelatine.

If a solution of ammonium bichromate is poured upon bibulous paper, one other part of it on well-sized photographic paper, and one other part upon a gelatine film, dried, and exposed to light, the behavior of the salt appears different in every particular case.

The light yellow-colored bibulous paper turns rapidly to an intense brown, more rapid blue chloride of silver paper; with well-sized paper the reaction is much depressed, and upon chromated gelatine it is almost *nil*, and for that reason in lichtdruck and carbon printing the change of hygroscopicity must be indicated by the grade of photo-chemical action. (Test by breathing upon plate or paper.)

The very high light-sensitiveness of chromates upon slightly-sized or unsized paper is of less practical value than the rapid and energetic change of color on exposure. With the so-called lichtpaus processes, that is, printing without the salts of silver, photolytes, printing-out as vigorously as silver chloride, are not yet known. To hit to a point the proper time of exposure requires much experience. Photolytes capable to print out with effects similar to silver are known, but for other reasons they have not been admitted to practice. KI., NaI., Pb.I. and other salts combined with starch cannot possibly be used, as the iodide of starch formed in the process is a photolyte itself.

The vigorous action of ferric chloride upon a metallic copper-plate can never be obtained upon paper, and red ferric cyanide of potassium is a very slow acting body.

The durability ascribed to silver prints, mainly those made with a compound of chloride and nitrate is not necessarily due to the silver salts, but rather to the fact that silvered paper can be printed out exactly to the desired point of intensity. Were we able to do the same with chromated papers, they would most certainly superceed all other methods of lichtpaus.

In connection with these observations, experiments have been made with the purpose to show when direct color reaction is strongest with chromates.

Monochromates are less sensitive to light than bichromates. Caustic or carbonate alkalies retard their decomposition and work alkaline salts, as acetate or phosphate of sodium act similarly. Acids act also disadvantageously.

The bluish gray paper prepared with a mixture of citric

acid and ammonium bichromate is nearly non-sensitive. Formic acid retards to a less degree.

Rhodan ammonium annihilates sensitiveness entirely. With tungstate of sodium a clear and white ground becomes possible, but sensitiveness is much depressed. The same action is shown by sodium oxalate and potassium chlorate.

Common alum does not affect sensitiveness, but injures the pure whites of the ground.

Stannous chloride and sodium sulphite reduce bichromates to chromium chromate, even in total darkness. Bisulphites act like weak acids, and ammonium vanadinate and borax are quite indifferent. The peach-blossom colored chromium chloride $Cr_2 Cl_6$ discolors under the influence of light, and produce, consequently, negative proofs. The gray chromium oxide hydrate, produced after Christensen, when the yellowish-red roseo-chromic chloride $Cr_2(NH_3)_{10} Cl_6 + H_2 O$ is exposed to light, or formed after Sörgensen, when purpureo-chromic chloride $Cr_2 (NH_5)_{10} Cl_6$ is subjected to the same, is of less characteristic color.

A mixture of ammonium bichromate and sodium chloride applied to sized or unsized paper is equal in sensitiveness to pure bichromate paper. Sodium fluoride retards sensitiveness to some extent.

The transformation by light of the dark-brown chromosulphate into green chromic sulphate, of which substances we have the early reports of Berzelius and later those of Brandenburg, becomes perceptible only after an exposure of hours. That the yellow chrome lead salt is a durable color proves Kappe's method of producing permanent pictures by development to be correct.

The employment of cupric bichromate recommended by Hunt and Burnett, also of ammonium bichromate with ferric chloride or silver nitrate, has no advantages, as these preparations, without being exposed to light, are of dark-brown color.

The salt of nickel is but sparingly sensitive to light.

Solutions of ammonium bichromate and gold chloride successively applied to paper give an intensely black picture with light-blue ground; the reduction of the gold salt is, however, partially effected before exposure to light.

The application of any of the above-mentioned substances or compounds has indeed no advantage over pure ammonium bichromate. A feeble increase of sensitiveness is perceptible when chromated paper after being dried is coated with oil or a resinous alcoholic solution. Oil is much easier oxidized in light than in the dark; and we notice here that by the combination of two photolytic processes the oxygen liberated from the chromate is united with the oily or resinous substance.

Ed. R. Liesegang,
(*Archiv.*)

REMINISCENCE OF A TRIP TO EUROPE.

(*Continued from page* 522 *and concluded.*)

After one week of sight seeing I left for Prague, Bohemia, thence to Vienna, where I saw old Vienna, which you can see in the Midway Plaisance at the World's Fair. My next stop was at Budapest, Hungary, but on account of the cholera scare, and the oppressive heat I retraced my steps to Lolzberg through the Bavarian Alps and the Saxon Schweitz to Munich, Bavaria. Here I visited our friend Mueller, who is known to most of us by his excellent work, and by the numerous medals won in this as well as other countries. Mr. Mueller received me very cordially, showed me his gallery, and gave me any and all information in regard to his mode of working. His is a model German gallery; his operating room is supplied with a large top and side light with the usual curtained and head screens (which by the way are of American manufacture). His camera is of special interest; it is arranged with two lenses same as a stereo instrument. The plate holder within the slide drawn is placed on one side, and with the other the focus is secured, and while looking on the ground glass, the proper position and expression is obtained; the exposure is made unknown to the sitter. In this way good results are obtained, where it is often impossible to, where you must caution the sitter to try to keep the proper position and expression and wait for the desired expression. This makes quite an expensive instrument, but it has its advantages as you will readily perceive. Mr. Mueller gave me a cordial invitation to attend the convention at Wiesbaden, the following week, so I went and was present. Their conventions differ very little from our Ohio Conventions, only that the pictures are made on platinum and mignon papers, some few on albumen. But gelatine, collodion and aristo is not placed on exhibition, as Germans do not like a shiny surface for portrait work, and I for one admit their artistic taste. There is, however, some collodion paper made in Germany, but I am informed by the proprietor of the factory that most of their production is exported, and very little used by their own people. In Belgium and France I saw very little good work. Paris has one gallery on the Boulevard de le Madelaine where some very pleasing work is made, but that airy and pleasing effect of the Germans is *non est.* I have heard objections raised by Americans in regard to German methods used in obtaining their effects in photographs, claiming that it was done by an artist and therefore not photographic. The only difference that I can see is that we have an artist to paint the effect we desire in a background, while they have an artist to do the work on each picture. Which is more artist? Some of the pictures exhibited to you last night by Mr. Kerschner were fresh from the artist's brush, and gave you a very good example of true German photographic art.

Come with me across the channel to London and there your eyes will meet quite a different scene. Here they cut and slash in prices. You can see the dollar man as well as the ten dollar; you see aristo used and abused. I commenced to look up a place where I could see good work, but I hunted up the Strand, down Pall Mall through Picadilly, and finally halted in front of Van der Wyde's, on Regent Street. Here I saw the best work in London. Allow me to say one word in regard to prices. In Germany cabinets are made from sixteen marks to thirty-six marks, being in our money from four to nine dollars per dozen, making the highest price obtained in any country on an average. If we strive to elevate our beloved art to the standard of our German brother, photography will never decline, is the honest belief of your humble servant.

A. L. Bowersox.

Correspondence.

CREDIT WHERE CREDIT IS DUE.

To the Editor of THE PHOTOGRAPHIC TIMES.

Dear Sir: I regret that in the heat of pressing engagements I unfortunately overlooked an article which appeared in your issue of 28th of April entitled "The Wet *vs.* the Dry," from the gifted and experienced pen of Professor Charles Ehrmann of New York, in reply to mine, which appeared in THE TIMES of March 3d, "Dry Plates *vs.* Wet," to which I now hasten a reply.

I read the worthy Professor's remarks with much interest, not only in the able and practical style, but his usual gentlemanly manner of handling a somewhat difficult question, although it is quite evident he has overstrained some of my arguments.

Far be it from me to depreciate so beautiful and useful a process as the gelatine plate has proved to be, and I gave them the highest eoniums of praise in the begining of my article as one of the greatest of improvements in the art of photography. But all processes have their drawbacks as well as their virtues, however good they may be. Again I assert that the dry-plate development is eccentric, uncertain (from the cause I mentioned), and therefore not practical. And I hereby suggest that if the film of gelatine plates could be made more transparent and less opaque so that the springing image could be clearly seen, marked and controlled, so that its degrees of intensity as well as the other qualities that constitute a good negative could be promptly established, as in the collodion plate then, and then only, will the gelatine plate ride out the victor.

Exposure and development go hand in hand, and no amount of intensification will ever bring up an under-exposure to a first class negative, and on the other hand no doctoring will ever reduce an over-exposure to the same quality, especially if they have ever been touched with hypo. But if the image could be clearly seen on the film much could be done as a remedy. But as it is there is no remedy but one. If the operator values his reputation he will throw them into the waste sink and expose again. But this is often easier to say than to do, because it often happens that there are a number of patrons waiting for their turn (not too patient), and the opportunity may be adverse. These questionable negatives are too often passed, relying to much aid on the retouching pencil or reducing bath, and faulty work is the result. Hence my appeal for an improvement in the more practical development of the dry-plate.

I thank Professor Ehrmann for his admiration of my courage in writing a few plain facts which I believe to be true by a long experience, and which will ever stimulate me to do so always. I was the first pioneer in Scotland to sensitize gelatine as a photographic agent as far back as thirty years ago, and have marked its progress to the present date, and the above is my unalterable conviction.

I never doubted the professional standing of the gentlemen practitioners he mentions, and believe them to be an ornament to the profession, or any other, as well as the many plate and instrument firms, and their enterprising agents who have spent their time and capital on the advancement of the mother art. The word "loafer" mentioned in my article alluded only to the many nomadic tribes who adopt photography as a money medium, and by their mean and unprincipled practice, have done much to hurt the trade and belittle the profession in the eyes of the world.

Gordon Wemys.

Notes and News.

The Hand-Camera Competition closes on the 30th of this month.

"The Grammar of Photo Engraving," by H. D. Farquhar, reviewed in last week's issue of THE PHOTOGRAPHIC TIMES, is meeting with a very cordial reception.

Herr Max Fischer, representative of Karl Zeiss Optical Works of Jena, Germany, was in New York last week, and called upon the editors of THE PHOTOGRAPHIC TIMES.

The *Canadian Photographic Journal* is offering some very valuable prizes to amateur photographers. Entries close December 1st. All interested should apply at once for particulars to the editor of this popular magazine.

A new glass, which is nearly impervious to calorific rays, is said to consist of a plate one-third of an inch thick, only allowing about 11 to 12 per cent. of the total heat from a bat's-wing burner to pass. The glass in made from 70 parts of sand, 34 of soda, and 25 of china clay.—*The Optician*, (*England*).

The Bruce photographic telescope, constructed after designs by Prof. Edward C. Pickering, of Harvard University, has been tested on the grounds at the workshop. A photograph of the north star was successfully taken. In our issue of June 2d we gave particulars of this gigantic instrument, which is destined to reveal further wonders and to greatly assist in the advancement of astronomy.

Commenting upon our remarks in a recent issue on the subject of color-blindness, *The Photographic News* says:

"We are not at all sure that color-blindness is altogether a disadvantage to a photographer. The tyro certainly may attribute most of his failures to giving too much value to the picture as seen on the focusing screen, because colors are so vividly depicted thereon. We all know that it requires a long apprenticeship before we learn not to see color, and to see a thing in simple light and shade. An engraver, or an artist in black and white, would certainly work the better if color were eliminated from his studies. On the other hand, the color-blind man is deprived of much enjoyment in the want of appreciation of the varied tints and color harmonies ever present in earth, sea and sky. Some say that excessive smoking induces color-blindness, and the fact that the affection is almost confined to males may give some support to this view. But whatever be the cause it is certain that color-blindness is much more prevalent than most of us think. From a recent Board of Trade return we learn that a large number of candidates for captains' and mates' certificates cannot distinguish colors. Out of 5,451 who were examined, 253 were rejected. As many as eighty described green as red, while several others thought it was pink,

blue or yellow. Seventeen were of opinion that pink cards were green, and twenty-seven classed drab as green. Among the rejected were men who had seen from twenty to thirty years', and more, service at sea."

Photographing the Invisible—This is a feat which, in the production of photographs of the ultra-violet rays and of stars never seen by the human eye, is no novelty, but it is to the general public more in the nature of an abstract problem. At the Academy of Sciences of Paris, however, M. Zenger gives it concrete form by exhibiting two photographs taken the 17th of last August, two hours before and two hours after midnight. They exhibit two faint images of the Lake of Geneva and Mont Blanc, which were at the time absolutely invisible to the naked eye. M. Zenger, however, stated that to some extent the invisibility was relative only, as it depended upon individual idiosyncrasies as regards visual power.—*British Journal of Photography.*

A. N. Camp, who supplies negatives for the New York Aristotype Co.'s illustration in the forthcoming volume of "The American Annual of Photography and Photographic Times Almanac" is rapidly coming to the front. One of the editors of the *Jamestown Journal*, who writes as follows: "A. N. Camp, of No. 207 Main Street, Jamestown, N. Y., was educated as a teacher in the public schools, but twelve years ago gave up pedagogy for photography, serving a careful apprenticeship and studying assiduously the art he had chosen. In 1881 he opened a gallery in Mansfield, O., which he disposed of in 1885, in order to remove to Jamestown, where he immediately acquired an old-established gallery by purchase, remodeled and re-equipped the same, and has made steady progress into the front rank of photographers. He is very conscientious, and the high standard of his work is undeviating, while the proximity of Jamestown to the Chautauqua Lake summer resorts gives him opportunity to "take" many notabilities and affords him free scope for his artistic talent. He owns and occupies one of the handsomest houses in the city, and is recognized as a public-spirited citizen as well as a progressive photographer." We here see how one imbued with love for our art, by steady and continuous climbing, reaches to "the top" of our art, as Mr. Camp surely has. His example should inspire others to follow in his wake.

Strange, 'tis True, and True, 'tis Strange.—We read in *Anthony's Bulletin*, August 12th: "We note in the Convention Reports that, with the exception of the foreign competitors, all the prize winners in the exhibition were users of American aristo." The editor of the foregoing periodical was a little too previous in penning that paragraph, for on page 484 of his own magazine is a list of awards, among which are noted three exhibits which were awarded prizes, and one of them the grand prize, which were made on albumen paper. We do not blame the editor for becoming enthused over the many fine effects produced upon such a perfect paper as the American Aristo Company turn out, but he should more carefully read proof, that he might not make such a misstatement. Albumen is far from being dead yet. We have talked with a number of first-class photographers recently, who have gone back to its use; and should the tariff be removed from the article there would possibly be more who would use it.—*St. Louis and Canadian Photographer.*

The 4 x 5 "Henry Clay."—We have been asked a number of times if the Henry Clay camera is made in the 4 x 5 size, and have taken the taken the trouble to inquire of the manufacturers, who state that they do make this popular camera to order for 4 x 5 pictures, and that they have sold so many of them of late that they have decided to manufacture it hereafter, regularly, in the 4 x 5 size, as well as the 5 x 7 size. The 4 x 5 Henry Clay camera is scarcely more than half the size of the 5 x 7, and that is smaller than most other 4 x 5 hand cameras, as every one knows. The 4 x 5 Henry Clay camera is priced at $50.

The Editorial Table.

"Phillips Brooks," by Rev. Arthur Brooks, D.D. New York: Harper & Bros.

We take pleasure in calling the attention of our readers to another issue of Harper's popular "Black and White" Series. The present volume consists of a memorial sermon, preached shortly after the death of the late Bishop Brooks, by his brother, in the Church of the Incarnation, New York City. It is, of course, somewhat enlarged in its present form and considerably altered. It is, moreover, illustrated by several very fine reproductions from photographs. The frontispiece is from the same negative which we had the pleasure of showing our readers in phototype several months ago, and which Bishop Brooks himself commended as being the best likeness ever made of him. This book will be especially appreciated by those of our readers who are interested in the man and admire the portrait with which we presented them in this magazine. The price is the same as the other series—fifty cents, in neat cloth—and will be sent to any address postpaid on receipt of that amount.

A Rare Opportunity.—Estes & Lauriat, the well-known publishers, of Boston, have procured the colored plates of the entire edition remaining of Audubon's "Birds of America," and now offer these famous and most beautiful nature pictures, being all life-size drawings, from the original stones, and most beautifully and accurately colored under the personal supervision of Mr. Audubon, at greatly reduced prices. They can be purchased separately at the prices indicated on the catalogue (which the publishers will send to any address on application), or the entire set of the plates remaining can be obtained at a specially low price. No handsomer picture for the hallway or dining room could be procured at any price. They are not only instructive as actual reproductions of nature herself, but are beautiful as pictures in their color and outline. We advise all of our readers interested in such things to write Messrs. Estes & Lauriat at 301 Washington Street, Boston, for one of their catalogues.

Lieut. Geo. A. Sawyer, of the United States Navy, sends us three very fine blue prints made from his own negatives, showing his method of work. They are printed on French Satin Junior paper, and reflect credit upon the printer and the paper as well as upon the photographer who made the negatives. One print especially, being the photograph of a four-leaved clover, life size, is very fine.

Our Quarterly Competition.

IN order to stimulate the growth of photography and to encourage our readers to make special efforts in particular branches of the art, we intend to offer valuable prizes for the best productions in different competitions instituted from time to time. These competitions will be conducted under the following rules, together with any special ones, hereafter stated, rendered desirable by any peculiar feature of an individual competition.

RULES.

RULE 1.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other detail of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The editors reserve the right of publishing reproductions of any of the photographs submitted.

RULE 4.—No competitor can receive more than one prize.

RULE 5.—All pictures for competition must be sent prepaid.

RULE 6.—Pictures entered for competition will not be returnable under any circumstances.

RULE 7.—Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

COMPETITION NO. 1.—HAND CAMERA WORK.

For the best set of six pictures taken with a hand camera, we offer the following prizes:

First Prize: Apparatus to the value of $50.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: Apparatus to the value of $25.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: Apparatus to the value of $10.00 and PHOTOGRAPHIC TIMES Certificate of Merit.

Any apparatus to these values can be chosen from the Scovill & Adams Co.'s catalogue.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

CONDITIONS.

1. All the rules and these conditions must be strictly adhered to or the competitor will be disqualified.
2. The camera must be held in the hand during the exposure.
3. The competition to be an open one. Any number of sets may be sent, but each set must be accompanied by a coupon.
4. The prints must be mounted either on one or several mounts. Framing optional.
5. The last day for receiving competitions will be September 30th. The awards will be announced as soon after as possible.

All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

The judges will be Mr. J. Wells Champney, the well-known artist; Mr. Alfred Stieglitz, the renowned amateur photographer, and Mr. George Rockwood, who we hardly need state is one of the leading photographers of America.

ENTRIES RECEIVED THIS WEEK:

Acadia, Red Cross, Climax, Remlap, Viking, 1; Viking, 2; Daisy Doan (6 sets), Vallite, Haymakers, Con Amore.

Queries and Answers.

134 READING, PA.—Is there any substitute for cyanide of potassium, or anything that will take its place in fixing terrotypes?

134 *Answer.*—Hyposulphite of sodium will fix ferrotypes, but a better tone is obtained with cyanide of potassium.

135 W. B. A. has intensified his negative with bichloride of mercury and rather overdone the thing.

135 *Answer.*—If ammonia or sulphite has been used, place the plate in the hypo bath and you can bring it back almost to its original intensity. If the cyanide of silver method has been employed this advice will be of no use. W. B. A. must then reduce with ferricyanide of potassium and hypo in the ordinary way.

136 PAUL ERNST sends us a negative with some peculiar marking, which he thinks are due to the use of sulphurous acid in preserving the pyro, because, when he changed his developer and used sodium sulphite, these marks entirely disappear.

136 *Answer.*—We are afraid Paul Ernst must seek for some fresh cause of his plate defects, as the sulphurous acid in that state would not come into contact with the plate at all, but be converted into sulphite of soda or ammonium, according, of course, to the alkali used.

137 P. E. S. wants to know how to prepare highly yellow sensitive plates. They are to serve for the photographing of flames, fireworks, etc.

137 *Answer.*—Dissolve 10 grains of erythrosine (blue shade) in 18 ounces of water, add 4½ ounces of alcohol, and lastly 2½ drachms of strong aqua ammonia. Allow to stand for twenty-four hours and filter. A plate preferably of an emulsion of pure bromide of silver is bathed in this solution for five minutes, dried, and then immersed in a bath of 60 grains of nitrate of silver in 32 of water. After two minutes the plate is rinsed and dried. With these plates one may photograph flames, electric sparks, etc. Under incandescent electric light the exposure is of reasonable length.

138 C. B. L. has over-intensified a very valuable negative with uranium nitrate and ferri cyanide of potassium. In its present state it takes hours in direct sunlight to make a print. He asks: Can this high intensity be reduced?

138 *Answer.*—Wash the plate for several hours in pure water and the intensity will be much reduced or subject it to a bath of cyanide of potassium (1 : 20), which takes the brown color off at once. Wash the plate again and you can intensify as in the first instance.

139 *Denton* complains about several very good brands of aristo paper, but quite unmanagable in his hands. He gives us a clue to detect the cause of his failures by telling that, for the different papers used, he has pursued but one method of toning and fixing. That is entirely wrong. The toning method prescribed by the manufacturer of the paper should be strictly adhered to, if not how can one expect the desired results. The maker of the paper compounds toning solutions to suit his own paper, but not that made by somebody else.

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Associate Editors:
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WALTER E. WOODBURY.

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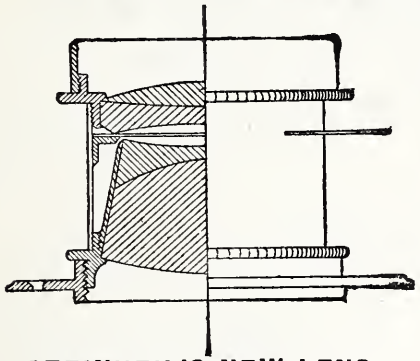
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OBSERVE the remarkable prints from 24 x 36 negatives on our Columbian Anti-Halation Plates, showing complete absence of halation under the most trying circumstances of light.

AND DON'T FAIL to use our Dark Room, which has been fitted up solely for the use of our friends in changing their plates and films. The dark-room and any advice our attendants can give are entirely free.

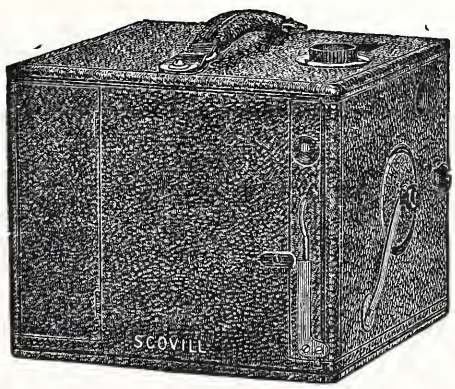
Manufactured by JOHN CARBUTT,

(Pioneer Manufacturer of *Gelatino-Bromide* and *Orthochromatic Plates* in America.)

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION, PHILADELPHIA.

THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size, It is

The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

The Recessed Finder shows *the same image* as is included on the ground-glass, though diminished in size. Without this accurate finder, one cannot be sure of what is taken in or left out of an instantaneous photograph.

The Focusing Scale is beside the Finder, where it may be readily seen and adjusted.

Price List.

	Leather Covered
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 00
5 x 7 Waterbury Detective Camera, with 2 Double Holders	40 00

FOR SALE BY ALL DEALERS.

ESTABLISHED 1865.

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Photographic Supplies,

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Full Assortment of White's Posing and Lighting Specialties.

∴ No. 910 Arch Street, ∴

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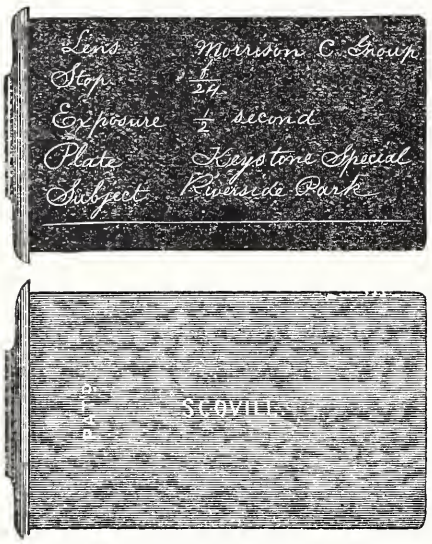
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These are the only stamp portraits that are gummed and perforated, and being the exact size of ordinary U. S. postage stamps, photographers and others will find them an interesting novelty in advertising their business, as they can be mounted on business and visiting cards, letter-heads, etc.

We also make a size four times larger than the stamp pictures. Send for samples and prices, which will be furnished on application.

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N. E. Cor. 8th & Locust Sts.
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REGISTERING SLIDES.

(PATENTED.)

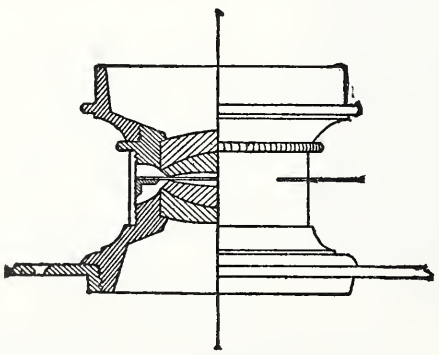
In the pleasure or excitement attendant upon picture-taking, holders slides have been so changed about that the note-book afforded no clue to their identity. All photographers, whether professional or amateur, who have in time past puzzled their brains in the endeavor to solve such vexatious questions as these—

"Have I or have I not exposed that plate?"
"If exposed, was the plate used for that prized picture?"
"Shall I incur the risk of making a double exposure?"

henceforth will have themselves only to find fault with if they do not procure and use in their dry-plate holders the patent registering slides, or as they have been called "Record Slides." These can be written upon with slate or lead pencil *ad libitum*, and the writing erased without injury to them.

Registering Slides *will be supplied with new American Optical Co.'s Dry Plate Cameras and Amateur Outfits up to* 10x12 *size without addition to price list.*

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WIDE-ANGLE COPYING APLANAT.



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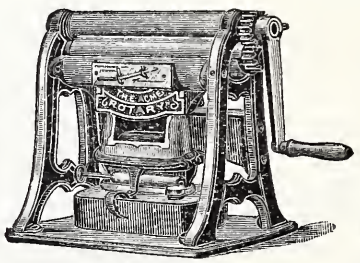
Specially designed for copying line work, paintings, engravings, etc. Without a rival for microscopic sharpness evenly divided over the whole field.

Steinheil Prisms, Series VII.—For use in connection with the above lenses for obtaining reversed negatives without stripping the film.

The above lenses and prisms are being extensively used in the largest photo-mechanical establishments in preference to the most expensive lenses of other types.

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8 inch	**ROTARY,** Alcohol, Oil or Gas, -	$13.00
11 "	" " " - -	20.00
15 "	" "	25.00

NOTE.

Quick Heater.
Saves seventy-five per cent. of gas, oil or alcohol.
No sweat, no smoke, no smell.
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No blistered prints, uniform results
Simplest Rotary Burnisher ever made.
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No adjustment bar over top of roll, allowing perfect manipulation of picture. Guaranteed in every particular.

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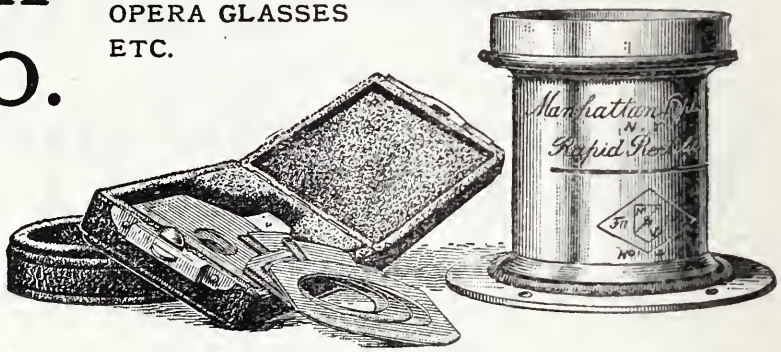
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These retouchers are intended to take the place of India Ink with its various admixtures of Carmine and other pigments. They are prepared for ready use and thus shorten very materially the operator's work ; also in many other ways they are a very great improvement in the ordinary method of retouching.

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Photo Retouchers, I., II., III.	$0 50	each.	
Albumen Whites, I., II., III.	50	"	
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Cobalt Blue	60	"	
Rose Madder	60	"	
Cadmium Yellow	60	"	
Scarlet Lake	50	"	
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In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

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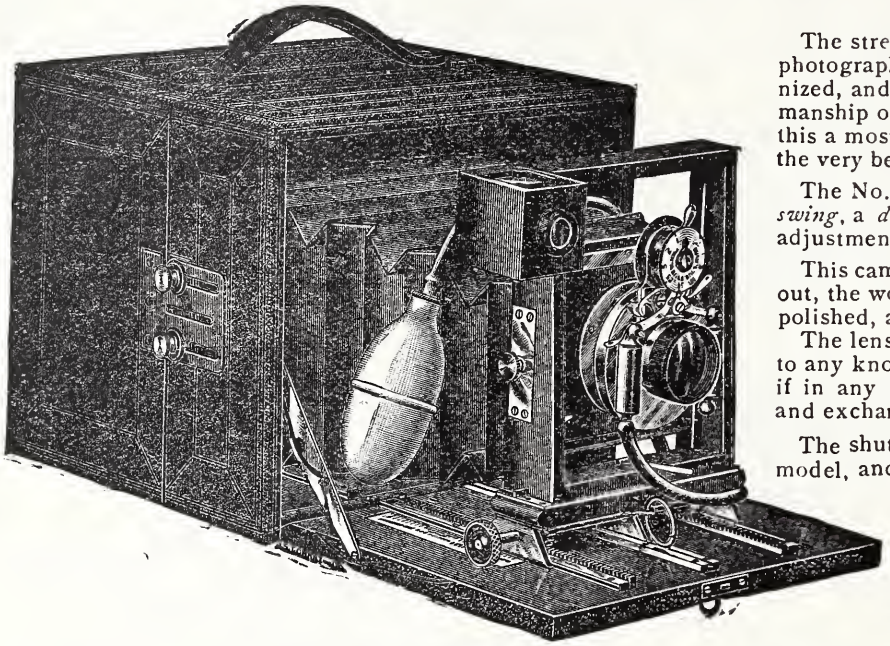
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THE 5x7 FOLDING HAWK-EYE, No. 2.

With Taylor & Hobson, or Kamaret Lens, and Bausch & Lomb Improved Shutter.



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The strength of the above combination from a photographic standpoint will be readily recognized, and the beautiful finish and fine workmanship of camera, lens and shutter, also make this a most desirable outfit for those who want the very best.

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The shutter is the latest and most popular model, and may be set for automatically timed exposures of from 1-100 of a second to 3 seconds with great accuracy, as well as for longer exposures in the usual manner. The lightness of this shutter, and freedom from noise and jar in quick exposure, also commend it.

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" Blair's Improved Roll Holder, with Automatic Tally,	9	" " " " 50 "	6

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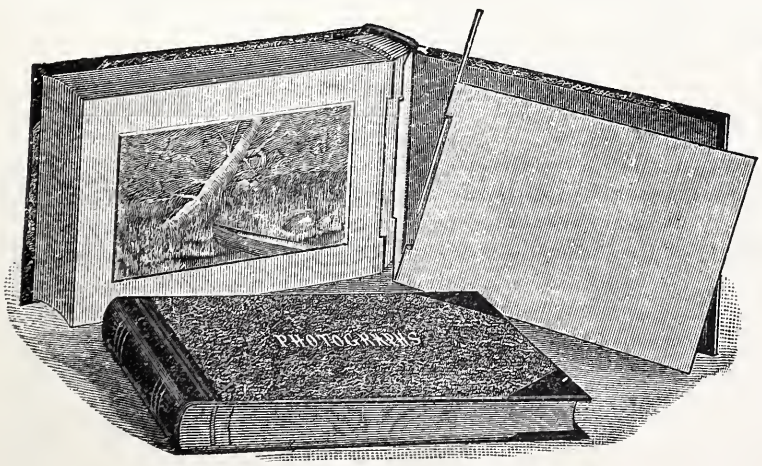
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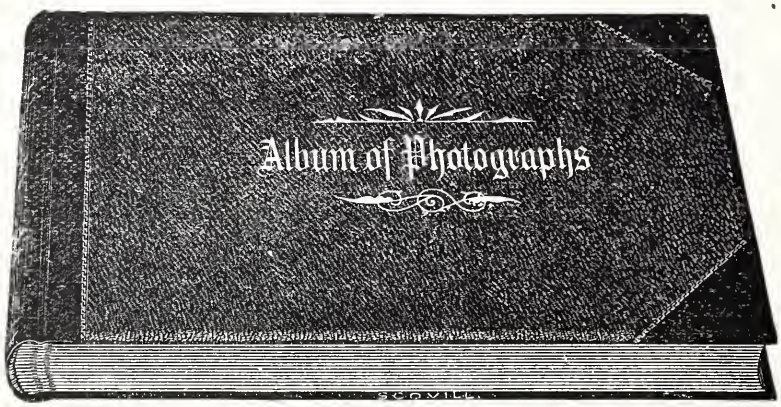
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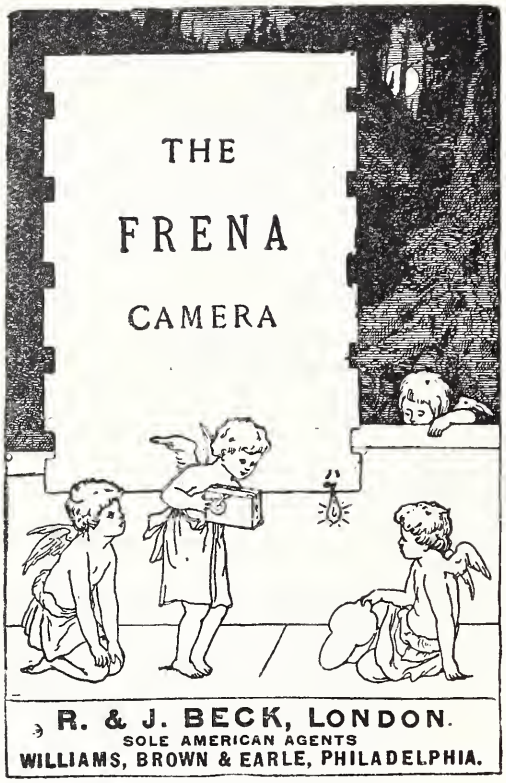
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genuine, too,
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The Latest and Best Cut Film Magazine Camera.



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Beck's best Autograph Lens with a perfect film insures superb results.

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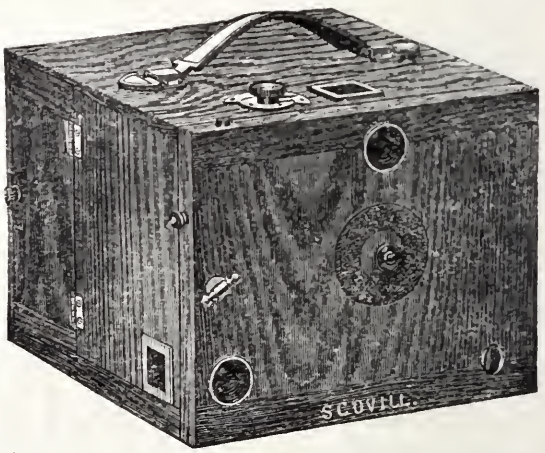
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IMPROVED
ANTIQUE OAK
DETECTIVE CAMERAS



To MEET the demand for a cheap Detective Camera within the reach of the youth, and of those who want to make but a moderate investment in photographic appliances, we have introduced the IMPROVED ANTIQUE OAK CAMERA, which is certainly lighter and more compact than any other cheap detective camera in the market, and what is still more important, has a much more expensive and more perfect lens.

This Double Combination Instantaneous Lens, with Interchangeable Stops, when bought separately costs as much as the whole camera.

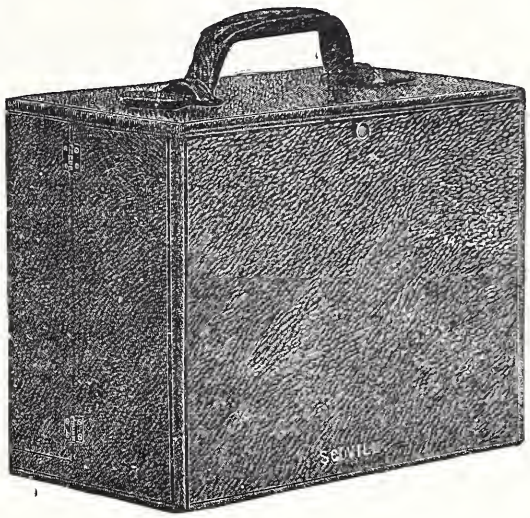
The whole front of this camera is hinged, which is a great convenience. The camera has a Recessed Finder, an Instantaneous and Time Shutter with Speed Regulator, Cap for timed exposures, and one Double Dry Plate Holder.

	PRICE.
No. 1 4x5 Antique Oak, Knack Camera, -	**$15.00**
No. 2, " Leather Covered, " "	**17.50**

MANUFACTURED BY THE SCOVILL & ADAMS CO.

FOR SALE BY PHOTOGRAPHIC MERCHANTS.

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.



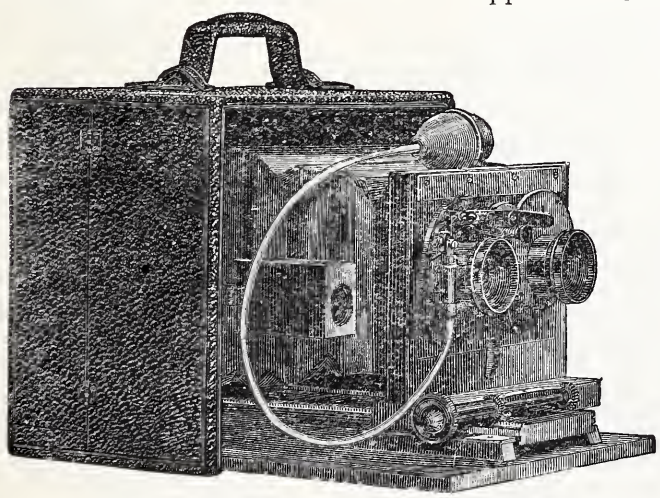
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release,** $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front,** . $80.00

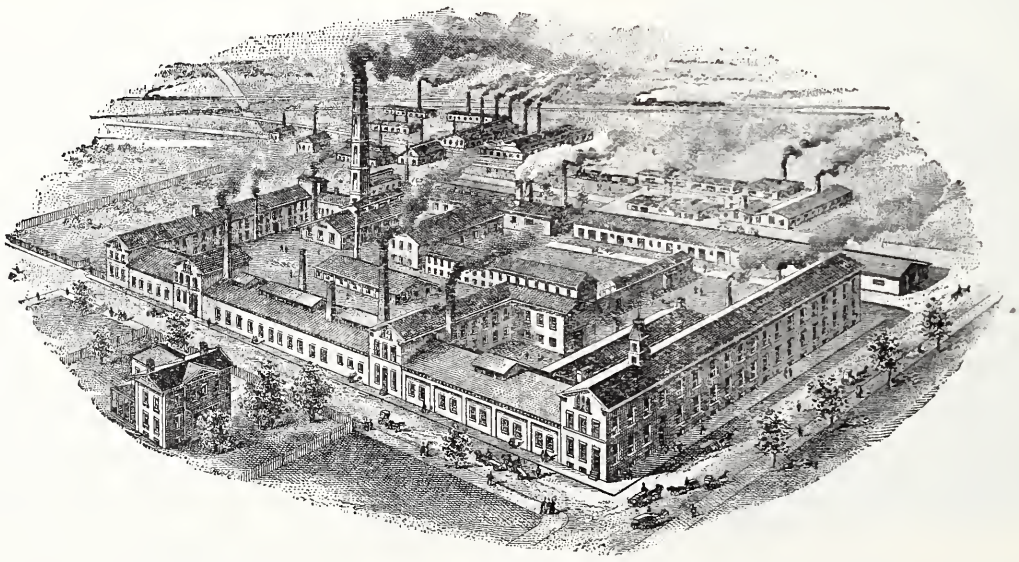
A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

THE SCOVILL & ADAMS CO., 423 Broome Street, New York.

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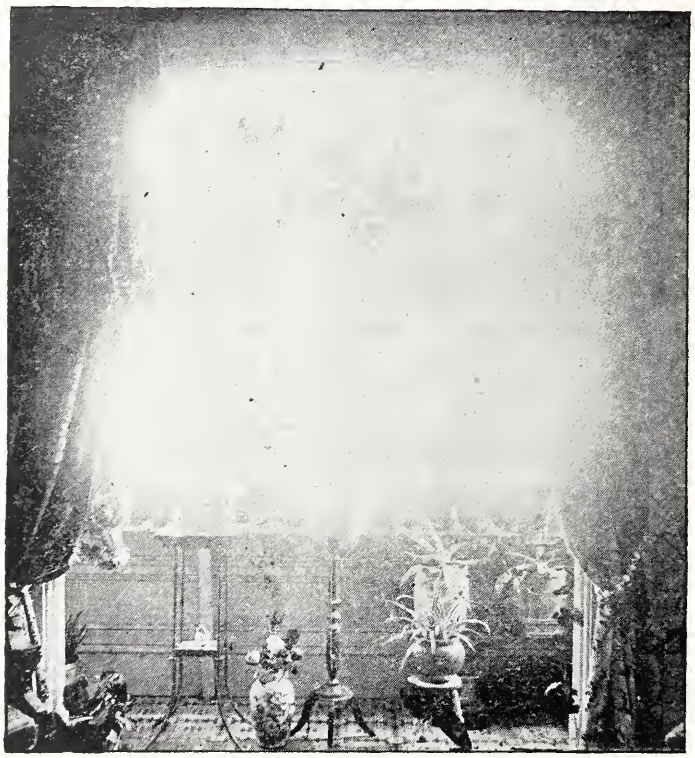
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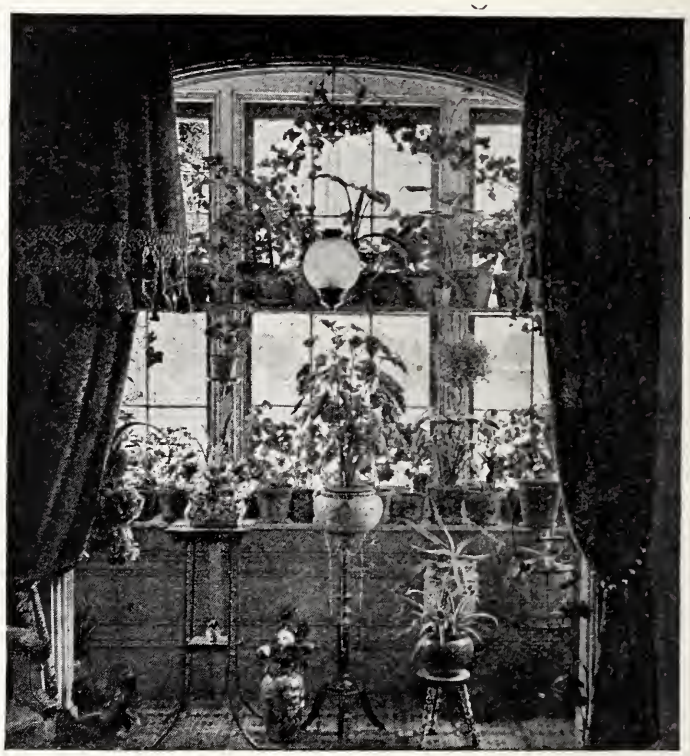
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VIKINGSHIP.

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. OCTOBER 6, 1893. No. 629.

THE VIKINGSHIP.

THE subject of our picture this week is one that will we think be of considerable interest to our readers. It gives a good view of the little Vikingship which so successfully braved the perils of the ocean on its voyage from Norway to Chicago. The photograph is by Ericksson, and the reproduction is a gelatine print by Wahlstrom of Brooklyn, who is rapidly coming to the front as a successful photo-mechanical printer.

REMARKS ON NON-HALATION PLATES.

A CONSIDERABLE time has now elapsed since the introduction of plates coated with double and treble layers of sensitive gelatine emulsion, the object being to prevent or considerably reduce the effects of halation with strong lights. Time enough anyway to prove their efficacy. Both professionals and amateurs look shy at any new introduction of this sort, and it is quite possible that there are still many who have not even given them a trial.

Those who have tested their qualities, however, have invariably been impressed in their favor. Both professionals and amateurs find them the very thing needed to prevent unsightly halos round the windows when photographing interiors. In landscape photography when making views of darkly lighted foliage with a strong light shining through, the blurrs and the destroyal of the outlines is surely avoided, or again to avoid the fringe of light that will of a surety appear when a light-draped figure or a marble or plaster bust is photographed against a very dark background.

These non-halation plates are easily manipulated and permit of strong and clear development whether they have been previously subjected to a short or a long exposure.

A plate of this description having been given a normal exposure or an instantaneous one, can be successfully developed in the same manner as an ordinary plate, the same precautions being taken

In such a case the uppermost stratum of emulsion is practically the one acted upon. The second layer may be so to a slight extent, but it serves principally as an anti-halation medium, and there is no difficulty in obtaining a negative of the desired quality.

To over-exposure a non-halation plate is by no means an easy matter, and it is this peculiar property that constitutes their most important advantage.

Ignorance of the proper use of these plates, however, often leads the photographer to throw away his plate on developing for the simple reason that it shows the usual signs of a hopeless exposure, or, in other words, the plate is developed all over with but little if any contrast. Such a course of proceeding with plates of this description is, however, utterly wrong, as will be seen. The fact that the upper stratum is over-exposed is of but little importance. Development should be continued until the image appears distinctly upon the back of the plate. This method of judging, with ordinary plates, although often recommended, is, in our opinion, of but little value as an indicator of correct intensity, but with the non-halation plates it is practically the only method left to us of correctly judging the negative before it is fixed. By carrying on the development in this manner the usual error is in obtaining too great a density. But this can be reduced with the ordinary reducing bath composed of ferricyanide of potassium and fixing soda. By this means the upper over-exposed layer is principally attacked, leaving the more perfect negative on the lower lying strata.

It will thus be seen that the upper film of emulsion may be thoroughly developed without the under ones being at all affected, and it is only by continued development that the reducing agents

can be made to work their way through and act upon them. As soon as the developing agent commences its work upon the lower lying emulsion strata, many interesting points may be noticed. The upper film having been thoroughly developed with every appearance of over-exposure or a general monotonous effect over the whole plate devoid of contrast between light and shade. The parts that should be dark are of weak intensity while the half tones or middle tints are unnecessarily strong. The utility and character of the three combined emulsion films at once becomes apparent. The greater intensity of the insufficiently exposed substratum compensates for the monotony of the upper layer and the half tones or middle tints of the upper gives printing quality to the lower, in those portions of the plate where the light or developer has not penetrated and where no action has therefore taken place.

In our experience and in our knowledge of the experience of others with this kind of plate we have met with but one occasional source of complaint. It was stated that the extra thickness of the three films in place of the one, prevented perfect sharpness from being obtained. It was imagined that the film being thus raised from the correct register allowed for the focusing screen and sensitive film, the two did not coincide, hence the image although sharply focused on the screen would be altered upon the triple-coated plate. Such an idea, however, can only be considered absurd.

The surface of the film rests upon the support of the carrier, which should be in correct register with the screen, hence the thickness has nothing whatever to do with it.

The real cause must be looked for elsewhere and we need not go very far.

With non-halation plates having two or three different emulsions the substratum or substrata are always of lower sensitiveness and made with a comparatively hard gelatine, the superstratum being highly sensitive and composed of a far softer gelatine used for emulsifying the silver haloids. By such an arrangement it is possible, as already stated, to expose the plate for a great length of time without fear of ruinous over-exposure.

The lower emulsion is but little affected by the exposure sufficient only to produce an image invariably under-exposed, which would, if separately developed, yield a harsh and glassy negative.

If nothing interferes this method of combining films is highly satisfactory. It prevents halation and gives a plate with an enormous latitude in exposure. As we have already stated, however, occasionally one meets with a disturbance of the equilibrium of the combined films resulting in an unsharp picture, which, however, can be explained and avoided.

In warm weather and when all other conditions are favorable to the softening of the gelatine film it will be easily understood that the top stratum will suffer to a far greater extent than the lower, which is composed of a harder gelatine.

Practice has proved to us how an alum solution will harden or re-solidify such softened film, but at the same time will considerably contract them.

When the upper film of a non-halation plate negative softens, the underlying strata of hard gelatine remain in the normal condition. When we then subject the whole negative for a few minutes to an alum bath of ordinary concentration, and contraction takes place, even to a slight extent, the top negative picture must naturally be smaller than the one at the bottom. In this way they are not coincident with each other, and consequently when viewed in the proper manner the picture appears lost in sharpness of definition.

The two individual pictures may be sharp enough, but when viewed by transmitted light or when printed from, the whole picture is blurred.

In portraits, landscapes and the like this unsharpness is seldom very perceptible and often makes but little difference to the quality of the picture.

But with reproductions of line drawings or engravings the fine lines, outrunners or dots are often distinctly seen to lie side by side.

The longer the plate has been subjected to the alum bath the more perceptible the effect.

Alum is evidently by no means a commendable tanning agent for non-halation plates. Preventatives we know are better than cures. In hot weather a little Epsom salt or tannin should be added to the developer and the temperature reduced as much as possible. Potash or chrome alum should be avoided altogether with non-halation plates.

EDITORIAL NOTES.

Our first quarterly competition is now closed, and so far has been a grand success. *Over six hundred* photographs have been received. We hope to be able to announce the awards in our next issue.

Next week we shall give particulars of the second competition. This will be a general landscape one, and will therefore be open to every photographer. Size will be immaterial.

Perhaps considering the number of accounts that have been given of photographers claiming to have made "the largest photograph in the world," we ought to place some restrictions on the dimensions. Anyway, we will not be too strict, but will say that any photograph too large to enter the office door (height 7 feet) without the necessity of architectural alterations will be disqualified.

Monsieur Marey has by means of chromo-photography revealed the fact that with the lizard, the undulations of the body coincide exactly with the movement of the feet.

The subject of tricolor printing as practiced by Kürtz and others is now one of great interest and there undoubtedly lies an immense future before it. The World's Fair Exhibit of the Russian State Paper Printing Office has attracted universal attention, so that Nadherny's recent contribution to the *Photographische Correspondenzen*, the method adopted for color printing, will be of interest to all. In this article we learn that a washed collodion emulsion is employed. For the rays transmitted by the green screen the emulsion is sensitized by the addition of $\frac{1}{10}$ volumes of silver eosin (according to Huebl). For sensitizing the rays transmitted by the orange screen an alcoholic cyanine solution (1 ÷ 400) is used. One takes 1 cm. of it to 50 cm of emulsion. I have found that the emulsion colored with cyanine will keep some days. A $\frac{1}{2}$ per cent. solution of gelatine mixed with $\frac{1}{2}$ cm. solution of chrome alum, poured on before the emulsion, has proved useful.

The screen fluid used for photographing red consists of a solution of 120 grammes cupric chloride in 200 ccm. water, and is put on 1 cm. thick. A solution of erythrosine (1 ÷ 500) serves when taken for blue. Only the pyro developer recommended by Dr. Albert is employed.

We call attention to the interesting article on automatic eclipse photography which appears on another page. It is a chapter from an important book entitled "Total Eclipses of the Sun," by Mabel Loomis Todd, and edited by Prof. David P. Todd, the renowned astronomer of Amherst College, which will shortly be published by Messrs. Roberts Brothers, of Boston, to whose kindness we are indebted for permission to publish this article in advance.

"Total Eclipses of the Sun" will be a work not written for astronomers, much less for eclipse experts, but to give very unprofessional information to those without technical knowledge who are yet curious as to these strangely impressive phenomena, and with the hope too of exciting further intelligent interest.

We are always pleased to hear of any smart photographic work showing ability and enterprise, and are much interested in learning that Mr. L. C. Bennett, a rising young photographer of this city, was recently commissioned by the New York *Evening World* to make a picture of the English yacht "Valkyrie" in the act of raising her racing sails for the first time in American waters. The picture was taken from *The World's* tug on September 28th, at 1.10 P.M., developed, printed and dried on board, inserted into a quill attached to a carrier pigeon, and specially delivered at *The World's* headquarters.

When the party landed at 4 o'clock at the Battery Park and purchased the *Evening World*, they found, reduced to line work, the Valkyrie's picture photographed but three hours since.

We have ourselves done some quick work in that line, as, for example, during the Flood Rock explosion, when a pictoral representation appeared in the newspapers 17 hours after the event. Others have been more successful since, but we think that the incident related beats the record. Perhaps some of our readers have beaten this. If so we shall be glad to hear.

For the excellent portrait of Mr. C. C. Bonney, President of the World's Congress Auxiliary, which appears on another page, we are indebted to the kindness of the Hon. James B. Bradwell. This picture originally appeared in Judge Bradwell's own paper, *The Chicago Legal News*.

The focal plane shutter has been considered to be the ideal method of exposing. Abney, however, in an English contemporary gives some very interesting illustrations of the distortion that often results when photographing objects in motion and exposing with a slit running across the plate from top to bottom. For instance, a perpendicular object moving along across the field would appear to lean forward, an effect due to the displacement of the image as the shutter slit passes over the plate.

AUTOMATIC ECLIPSE PHOTOGRAPHY.

By Mabel Loomis Todd.

[Edited by Prof. David P. Todd, of Amherst College.]

As doth the blushing discontented Sun.
From out the fiery portal of the east;
When he perceives the envious clouds are bent
To dim his glory, and to stain the track
Of his bright passage to the occident.

Shakespeare, *King Richard the Second*, iii., 3.

As long ago as 1852 Prof. Piazzi Smyth wrote of the overwhelming effect of a total eclipse upon the observer, and its distracting power for confusing the best laid programme of work. "Although it is not impossible," he says, "but that some frigid man of metal nerve may be found capable of resisting the temptation, yet certain it is that no man of ordinary feelings and human heart and soul can withstand it. In the eclipse of 1842, it was not only the volatile Frenchman who was carried away in the impulses of the moment, and had afterward to plead his being no more than a man, as an excuse for his unfulfilled part in the observations,—but the same was the case with the staid Englishman, and the stolid German. . . . In fact, the general scene of a total eclipse is a potent Siren's song, which no human mind can withstand: and the only way in which its witcheries can be guarded against is that by which Ulysses passed the fatal shore in safety. Let, then, those who on a future occasion have to make the more accurate telescopic observations, surround themselves by some high wall, which shall prevent their seeing anything but a very small portion of the sky round about the Sun and Moon."*

Perhaps in more modern days the astronomer would not admit the strength of this pictorial effect upon his nerves; he certainly would not allow it so interfere with his plan of operations. But he has now in a certain degree surrounded himself with the high wall recommended by Professor Smyth, in the dark-rooms and photograph-house, where the camera, having no nerves, plays the largest part in eclipse observation.

Prominent among the obstacles to recent research upon the corona has been the fact that only a small number of pictures can be taken in the available moments. Some appearance, perhaps new and significant, may have been a mere peculiarity in the plate, and the few exposures made may not suffice to correct this impression.

The photometry of the corona, or the detailed measurement of its light in every part, is a problem requiring much critically arranged apparatus, and is now nearly all accomplished in the most satisfactory way photographically. While the eye can record the spectrum of the corona in only limited regions, a multiple spectroscope making a photographic record might give the composition of its light in a multitude of regions. And there are many other problems of size and form of apparatus still awaiting solution. What size of lens is best adapted to photograph specific parts of the corona? Should the full aperture be used, or should it be reduced? Do lenses figured for the actinic rays offer great advantages over those not so figured? Are not reflecting telescopes with metallic specula in every way better adapted to coronal photography than refractors? Much light is still demanded upon these and other matters governing the proper outfit of eclipse expeditions.

Obviously the early attainment of this information can come only through a large increase of apparatus. But here arise difficulties: to take out the exposed plate, lay it down, place another in the focus, expose and take that away, all are time-consuming operations, and the mere changing of plates ordinarily occupies a large part of the entire period of totality. Manifestly, only a few plates can be exposed with a single instrument during the average three minutes.

An automatic apparatus was devised and employed by Professor Todd during the eclipse of 22d December, 1889 (by which several hundred plates were exposed during the 190 seconds of the total phase), which is entirely novel, and worked so flawlessly that I am sure it will be of interest to describe it here.

Suppose twenty telescopes or fifty telescopes could all be brought to bear upon the corona, with means at hand for each to make its individual record; evidently the gain would be enormous because telescope, spectroscope, and camera would then be available for a great variety of experiments; in fact, the most effective way to use certain of these instruments has yet to be found out by repeated trial, with many variations of the mechanical, optical, and photographic circumstances of each.

Photography supplies the means of unimpeachable record, to be sure; but obstacles, mainly mechanical, have always hampered its application. Of course, each separate instrument requires a delicate adjustment to point it directly at the sun; then a clock-work must maintain it accurately pointed; exposing shutters must open and close at times which are rarely identical for any two telescopes; and withal the sensitive photographic plates must be changed at frequent and irregular

Transactions of Royal Society of Edinburgh, xx. (1852), 504.

intervals, if each instrument is employed to its fullest capacity.

Heretofore these operations, often rather complex, had always been made by hand. In extreme cases, one astronomer may attend two or three photographic telescopes; but in moments of high tension he is always liable to forget some part of his programme and ruin a corresponding part of the results. The more complicated instruments have often required the exclusive attention of two persons, and sometimes four, during the hurried and always too brief moments of total obscuration.



THE PHOTOHELIOGRAPH.—SHIRAKAWA, JAPAN.

Why should it not all be done automatically? Coming home from the Japan eclipse in 1887 this significant question occurred. No answer came. But on experimenting some months with certain curious combinations of apparatus, electric, pneumatic, and others, a general solution of the problem was one day reached. The principles employed in the action of automatic musical instruments are well known and successfully applied; by adapting them to the peculiar requirements of astronomical photographic apparatus, such mechanical operations were clearly feasible.

It did not take long to try it. Mr. Gally, the eminent inventor, giving his authorization to the use of the pneumatic valve system covered by his letters patent, the necessary apparatus was immeditaely begun for the United States Eclipse Expedition to West Africa in 1889, in charge of Professor Todd.

The optical preparations were unusual. Spectroscopes and photometers were supplied from the Harvard Observatory; polariscopes from Yale; photographic telescopes, both reflecting and re-



MEN-OF-WAR ATTENDING THE ECLIPSE EXPEDITIONS TO WEST AFRICA, DECEMBER, 1889.

fracting, by the United States Naval Observatory and M. Saegmüller, the well-known instrument-maker at Washington; large photographic lenses by the Gundlach Optical Company of Rochester;



MASTOTE BAY, ANGOLA, WEST AFRICA.
(40-ft. Telescope in the foreground.)

while the observatories of Princeton and Amherst also made contributions of useful apparatus. In all there were twenty-three object-glasses and two



GENERAL VIEW OF THE AUTOMATIC INSTRUMENTS.
(U. S. Eclipse Expedition to West Africa, 1889.)

reflectors,* every one adapted to a special problem.

Naturally, each instrument could not have its individual clock-work and mounting; so the emergency was met by building an axis to revolve equatorially, and large enough to accommodate the entire photographic apparatus. This was not so difficult as the more important matter of clock-work sufficiently powerful to move this great mounting with the requisite degree of precision.

The illustration on the preceding page shows a general view of the camp on the African coast, while the following page gives a nearer view of the automatic instruments described. A skeleton axis was mounted upon massive piers of stone and iron,

* *Monthly Notices Royal Astronomical Society*, 1. (1890), 382.

which were in a north and south line, the south one being elevated so that the axis should point directly toward the south pole of the heavens. At the top of the iron cap-pieces were the heavy brass bearings in which the axis turned; and these could be moved either up or down, or to the right and left, until the smallest deviation from the true pole was corrected.

Then all the foregoing instruments were rigidly secured in the duplex revolving frame, and pointed upon the sun.

Other piers were built alongside to support powerful clock-work geared upon one end of the polar axis, and a weight of nearly half a ton was required to drive it. Then, as the sun moved downward in the west, all the telescopes, once directed upon it, followed with the necessary accuracy.

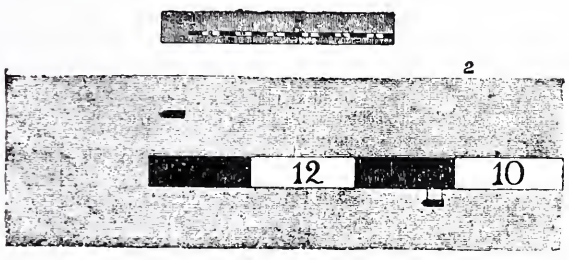
Next, the photographic part of the programme—and further difficulties. Some of the sensitive plates were very small, 1 inch by $2\frac{1}{4}$ inches; some very large, 17 inches by 20 inches. In order that the plates should be changeable by simple pneumatic movements, it was generally found best to attach them to revolving barrels, as large and as many-sided as the number and size of the plates for each particular instrument might require. Attaching a pulley to one end of the barrel, and winding upon it a cord with a weight attached, the necessary means of turning the plate-barrels was at hand. Several metallic pins, equal to the number of photographic plates, were then inserted in the pulley as detents; and thus the motion of each barrel was entirely under the control of a small bellows attachment, operated by the air current of the pneumatic commutator.

Where the plates were few and small, they were moved along in grooves by means of minute organ-bellows, rigged with suitable ratchet movements. In another form of automatic plate-holder, the plate was secured in a light frame, moving laterally in a second frame, which again moved longitudinally in a shallow box about four times as large as the plate. The movements of the frames were readily accomplished by pneumatic bellows, and so it was possible to bring every part of the plate to that position where the image of the corona should fall upon it suitably for exposure. Twenty-five pictures on a single plate were within easy reach of this mechanism.

(To be continued.)

PHOTOGRAPHING A BULLET IN ITS FLIGHT.

We give here a photograph made by Anschütz, the well-known instantaneous photographer, of a bullet taken during flight. The top illustration represents the original size of the photograph, and the other an enlargement of the same. The bullet is photographed over a rule divided into centimeters and milimeters so that its speed can be better determined. Underneath one of the black portions of the measure will be seen another bullet of the same size held stationary, so that a comparison can be made between the two. The reproduction is by no means good. The little head of compressed air in front of the bullet, visible in the original, is not shown. It is this air that prevents one from being able to hit a blown egg suspended by a fine thread. Many important observations have been made by these photographs of bullets. As may be imagined, a very small exposure is required. The illustration given was taken in $\frac{1}{2500}$ part of a second.



PHOTOGRAPH OF BULLET DURING FLIGHT.

THE ART AND PRACTICE OF GELATINO-CHLORIDE PRINTING.

(*Continued from page* 544 *and concluded.*)

PART II

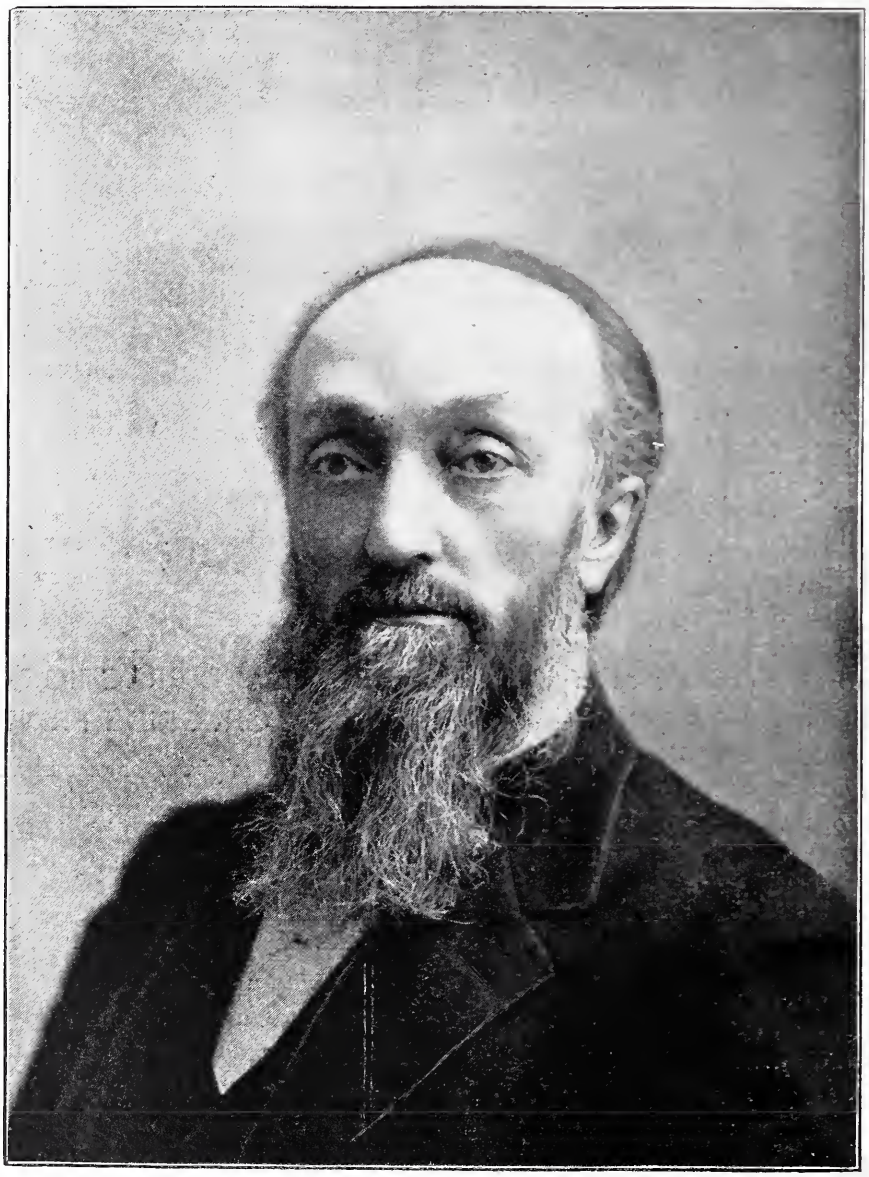
The Manipulation of the Paper.

Chapter XII.

The Question of Permanency.

In taking up with a new process and having the intention to use it in the future, the question of the permanency of the results is one of paramount interest. For this reason we will devote this chapter entirely to its consideration. Having worked with this class of paper long before it was first placed on the market in Germany, and as the first introducer of the process commercially into England, we can claim to discuss the matter upon a practical basis. To begin with, it is well known that the albumenate of silver formed in albumen paper is an exceedingly unstable salt and one of the chief causes of fading. In gelatino-chloride paper this is done away with and silver citrate or acetate substituted. It is in the manipulation, however, that so much lies. In toning, for instance, prints toned with certain baths are not likely to be so permanent as others. In our experiments we have

found those containing the most gold to last the longest. But recently we were shown an album of gelatino-chloride prints, every one either yellow or brown. They were toned and fixed together in a combined bath. Here, we think, lies one of the chief causes of fading; not in the use of this kind of bath, be it understood, but in the misuse of it. The toning and fixing actions do not always work together; thus it happens that a print is removed because it is toned to the required color, but no thought is given as to whether it has remained in the solution sufficiently long for the hyposulphite to complete its action. Then, again, with these combined baths, when the toning action is weak more gold is added, but the addition of more fixing salt is usually forgotten. It is to be regretted that fixation is practically invisible, as in insufficient fixing lies the chief cause of fading. Most of the emulsions are hardened with alum, and fixing is therefore slower than with albumen prints. We should recommend a bath not weaker than 3 ounces to 20 of water. Fix in this for fifteen minutes, and then remove to a fresh bath of the same proportions and allow the prints to remain therein for ten minutes or so to dissolve the otherwise insoluble hyposulphite of silver. This may be said to be the only natural method of fixation, although very little used. Nevertheless we are convinced that if permanency is desirable, this matter will tend very largely to secure it.



C. C. BONNEY.
President of the World's Congress Auxiliary.

Every means should be resorted to to remove the hypo well and quickly after this is accomplished. The longer gelatino-chloride of silver prints are washed the less permanent are they. One hour in several complete changes of water serves to eliminate the hypo, and the prints should not be left in any longer at the risk of decomposition of the gelatine setting in. In mounting it need hardly be pointed out that an inferior mountant or bad quality boards will have a disastrous effect. The last point to be considered, however, is the keeping. Dry gelatine will keep for years, but moisten it and it goes bad in a few hours. The advisability, therefore, of keeping prints of this nature in a dry atmosphere cannot be too strongly pointed out.

From these remarks the conclusion we must arrive at is, that gelatino-chloride prints may be considered permanent (giving a reasonable interpretation of the word), provided that proper precautions be taken in their manufacture. These are: Gold should not be stinted in toning; the prints should be thoroughly fixed in two fixing solutions; the hypo should be freed by washing in several changes of water, and not by long immersion, tending to decompose the gelatine. Pure mounts and mountants should be used. Lastly, reasonable precautions should be taken to protect the film from foreign action, particularly that of moisture.

Walter E. Woodbury.

AN ENGLISH HOLIDAY PHOTOGRAPHIC RESORT.

I TAKE it that any information about places well adapted for photographic work will be welcome and useful to the many American amateur photographers who annually visit this country; especially if the places discussed are little known or out of the beaten track of travelers. Now Whitby is just such a place; it is not really well-known even to Englishmen; and excepting the magnificent studies and views of Mr. Frank W. Sutcliffe, I have never seen any photographs that I should recognize as of Whitby. It is a seaside resort, lying at the mouth of the river Esk, on the east coast of Yorkshire, not many miles from the well-known and fashionable Scarborough, and not many from Saltburn, which is fast becoming another fashionable seaside place.

Scarborough and Saltburn are emphatically new, Whitby is eminently old and quaint. With the exception of Lynmouth and its district, I know of no place to compare for a moment with Whitby, and the latter is a much better place for sea-bathing and for the gambols of children; for while it has fine sands the shore is well protected from the glare of the sun all day long by the high cliffs which stand near the seaboard. Moreover Whitby is not, or at least not yet, overrun with Cockney tourists; Leeds; York and Hull send a contingent of "Trippers," but there is nothing of rowdyism, nothing of the Ramsgate-Margate style about Whitby. This may be accounted for by the fact that it is not a cheap place as seaside places go; actual food is cheap and good—all kinds of farm produce and fish are specially good—but lodging is somewhat dear, and after July not easy to obtain. But in July, before the schools have closed for vacation, board and lodging are both quite reasonable in price.

The Esk runs down a beautiful valley, which at the mouth of the river has steep, rocky sides, and the town of Whitby is built on these steep sides. The town is very old, and was built apparently without any plan or arrangement; each house seems to have been stuck down wherever room could be found without any regard either to access or to other houses; the consequences are peculiar. From one house you can look down the chimneys of another; and the roads to some of the front doors are, to say the least, devious; to reach one house one may have to go through part of another, probably by a passage under some of the rooms of the latter. The whole town is cut up into narrow lanes, or "closes," few of them straight, all of them strait.

The river runs about east and west, but the two cliffs on which the two parts of the town stand are called the East and the West Cliffs. The East Cliff has all old houses; the West has also old houses, but on the top of the West Cliff are the better, more modern, and more fashionable dwellings. Down below, the river ends in a small but picturesque harbor, wherein lie fishing boats, some of the district, some all the way from Plymouth and Penzance. The East Cliff is crowned by the venerable and imposing ruins of the Abbey of St. Hilda, which is seen from every side standing sharp out against the sky; a little lower on the cliff is a very old church with a cemetery. The view of the East Cliff from almost any part of the West is simply magnificent. The old houses are of red brick or sandstone—a dull red—and the roofs are of brighter red tiles; the effect in sunshine is very fine.

The harbor with its several piers is eminently suited for hand-camera work; and there are at all times groups of fisher-folks and children, sitting, lying or playing about the older piers. The little boys take to the water like ducks, in warm weather any number of them may be caught disporting themselves "*in puris naturalibus*," or not even that. Mr. Sutcliffe has been known to make the best of such scenes; witness his "Water Rats."

We need by no means confine ourselves to Whitby, for in the vicinity are many excellent fields for camera work. There are several fishing villages even more quaint and old-world than Whitby, as Staithes and Robin Hood's Bay; and there are many bits of purely rustic scenery, such as the old mill wheel at Rigg Mill; waterfalls galore at various places, and rustic figures everywhere, for this part of Yorkshire is still primitive in many respects.

I must not enlarge or specialize further; all that needs to be said in conclusion is that I hope no American traveler visiting this country with a camera, whether it be a Hand or a 24 by 20, will miss paying a visit to Whitby.

Many visit Scarborough, and an hour's journey will bring them to this lovely old English town.

Andrew Pringle.

PHOTO-GRAVURE.

[World's Congress of Photographers.]

IT is to be regretted that the nomenclature in photographic processes should not have been established on a better basis than at present exists. There are several distinct methods of making printing plates by photography. For instance, a plate in relief is made for printing in a type press.

Again, a plate in intaglio is made for printing in a steel or copper plate press. Again, a transfer is made to stone, by means of photography, and printed by the ordinary lithographic method. Again, a specially devised printing plate is made of gelatine, by photography, and is printed from somewhat after the manner of lithography.

To the process which produces plates in relief, similar to a type, for printing in a type press, there can be no better or more correct name given than photo-type. For printing from intaglio plates, by the steel or copper plate method, on a steel or copper plate press, it is plain that the right name is photo-gravure, or helio-gravure, and nothing else.

For printing from a stone on which a photographic transfer has been made, photo-lithograph is equally correct, and there is no room for any other name. And for printing from the specially prepared gelatine surface, photo-gelatine is the commonsense name, that is most easily understood. A great deal of confusion would be avoided, if the different processes could always be called by their names, as indicated.

The name which is given to what is esteemed to be the highest-class process, that is, photo-gravure, is misapplied without consideration, to almost all processes, from any printing press, in which photography takes a part. But few people are aware that they are being misled, when photo-types, photo-gelatines, and photo-lithographs are all indifferently called "photo-gravures." It is as reasonable to call an impression of a woodcut an etching or mezzotint engraving.

Similarly, photo-gelatine prints, which are called variously albertypes, heliotypes, lichtdrucks, artotypes, collotypes, mezzotypes, lithotypes, phototypes, and many similar barbarous names, mislead the public and cause an amount of confusion, all of which could be avoided if the common-sense name of "photo-gelatine" could be applied to all results by the various modifications of this process of printing from a gelatine plate made by photography, especially as it is true that the word "phototype" signifies plainly and distinctly an impression from a type made in relief by photography and printed in the ordinary type printing-press. This name only should be used for all such results as are produced by the various so-called "relief" processes.

The word "photo-lithograph" seems to have been misapplied, perhaps, less than any other. At the same time even photo-lithographs are often called "photogravures."

I put up my protest against this miscalling of all process results as "photogravures," and hope that the intelligent part of the community may by degrees learn the importance of "calling a spade a spade."

A simple illustration of the objection to the existing system is that, in my own experience, I am frequently asked for a price for photogravure work (which, of necessity, is somewhat expensive), and am promptly met by the response, "Your charge is out of reason. I can get photogravure work at one-tenth of the price," meaning that they can get so-called "photogravure" work at one-tenth of the price, but really obtaining only the cheapest results, in the shape of zinc or copper-plate half tone etchings, and so giving a "black eye" to the really beautiful process of photogravure.

If publishers of pictures would avoid this misleading nomenclature it would be far more satisfactory to the buying public, and avoid the necessity of continual explanation and justification.

This introduction seemed necessary, as it is only with the true process of "photogravure" that I have at present to deal. It may have been gathered from the remarks already made that true "photogravure" consists of an intaglio plate, printed after the fashion of a steel or copper mezzo-tint plate, in which the interstices are filled with ink, the surplus ink wiped away, and the resulting ink drawn from the plate on to a sheet of paper.

The short story of photogravure is this: The first experimenters simply obtained a photographic negative, and from this a positive which was printed on a copper plate coated with a solution of asphalt, which is sensitive to light. After the image was obtained, the lines only being protected from light, the asphalt on these lines was dissolved away by turpentine, leaving exposed the underlying metal, where the lines of the original plate existed. It was then subjected to etching in the usual manner, and a reproduction of the original picture was thus produced, for printing by the intaglio method. But this, of course, only applies to line subjects. In the case of photographic originals, their value consists not in lines, but in half-tone, and such a process would not be available for this purpose, because large masses of metal would be eaten away, and when the ink was worked into the plate, the wiping away would remove all the ink from such large spaces or pools. It was necessary, therefore, in the first place, to provide some means of preventing such etching. To do this, a grain had to be formed on the plate, which would prevent the action of the acid, and make instead of large masses of etched spaces, a

series of very small pools, with grains or dots of the metal sticking up at intervals. This, it will be seen, readily prevents the wiping away of the ink from the etched surface. The first process, and the most successful, and the one still producing the most beautiful results, is that introduced by Goupil & Company.* Their method was, broadly, this : A picture was printed from the photographic negative on to sensitive gelatine. This sensitive gelatine, after exposure to light, was soaked in water, with the result that those parts not acted on by light swelled from the absorption of water. Those parts most acted on by the light did not swell at all, for the reason that they had been rendered inabsorbent, whilst the intervening half-tones dissolved and partly swelled with the absorbed water ; the result being a picture, not in light and shade, but in relief and depression, such relief and depression, varying in degree, forming the half-tone of the photograph. On this swollen gelatine picture, a deposit of copper was made by electricity. When withdrawn from the gelatine relief, it had, of course, all the varying contours of the relief, and, therefore, of the original photograph, but without the necessary ink-hole grain. To secure this, various methods were suggested. one being the admixture with original gelatine of sand, or emery, or powdered glass. This, of course, produced the desired grain. Another (which probably is the method used by Goupil, though it is not certainly known) was what can be called the "chemical" grain, that is to say, a grain which was produced by the action of light on sensitive gelatine, the grain becoming coarser as the light passed more readily through the negative. With an electrotype such as this, carefully finished by hand (and in the case of Goupil & Company the amount of work put into the photogravure plates used by him is often equivalent, almost, to the re-engraving of the whole plate) the wonderful results that now are issued, and circulate all over the world, have been produced.

A later and simpler method was that known as the "Klic" process, introduced by Herr Klic, of Vienna. Here, instead of a deposit on a gelatine relief, so as to make what is called a "built-up" plate, a sheet of copper is, in the first place, taken, and is dusted with resin or asphalt, which is then melted on the plate by heat, thus forming practically an aqua-tint grain. On this grained plate is then placed, by any convenient means, a layer of sensitive gelatine. From the positive or transparency produced from the photographic negative an impression is then printed on the plate by means of light. The plate, having on it the photographic image thus produced, is then placed in the etching bath, with the result that the etching fluid permeates those parts of the film which have been acted on by the light more readily than other parts where the light has hardened the gelatine and made it less absorbent, and passing through the rest of the gelatine film in varying proportions, according as the light has acted. After the proper amount of etching has been produced the gelatine film is washed away; then the resin or asphalt is dissolved by means of turpentine, leaving as a result a plate which has been etched in various degrees, according to the lights and shadows of the original which has been copied, but having all through it a series of small grains or dots, which have been protected from the action of the etching fluid by means of the resin or asphalt, which at first had been dusted on to the plate and melted by heat. These grains or dots thus constitute an efficient ink-holding capacity, so as to prevent the wiping away of the ink from the various parts of the plate and producing a photographic copy of the original. The plate is taken in hand by the artist and finished or modified to any desired degree.

It will readily be seen that a number of modifications of this general underlying principle may be adopted. For instance, instead of placing a layer of sensitive gelatine on the copper plate, a carbon picture may be produced from the positive with which we start, and this may be attached to the grained copper plate by the method used in the carbon process and developed as in the carbon process, the result being that we have a gelatino-carbon picture on copper having a number of different degrees of thickness, through which the etching fluid permeates, according to the action of light and the consequent thickness of the gelatine film. The plate, when ready for printing, is put on to the ordinary press and a proof obtained from it. Any changes that suggest themselves may then be made, and when the plate is finally accepted as being satisfactory it is ready for printing, with this important exception, that in its existing condition it would not stand more than half a dozen impressions without damage, and to secure sufficient wearing quality a coating of steel must be deposited on it, when a large edition may be printed from it. This coating of steel, or "steel-facing" as it is called, is produced by the ordinary electrotype methods, substituting, of course, a solution of steel or iron for the copper. The very thinnest film of steel only is necessary, and it would be practically impossible to measure

* The process was suggested to them by the late W. B. Woodbury, inventor of the Woodburytype process, etc.—Editors.

the thickness of the deposit, which should be so thin that the very finest details of the picture do not suffer in the least. A good steel-facing will last a thousand and sometimes thousands of impressions; but it is very readily removed with a weak solution of acid and a new coating of steel put on when a fresh start is made, with the plate as good as at the commencement of the work. Care, of course, must be taken that the plate should not be printed from when any of the steel-facing shows wear. This is easily ascertained from the fact that it is then that the copper shows through. When the plate is ready for printing, the methods of printing adopted are those of the ordinary steel-plate printer; but greater care has, of course, to be exercised in wiping the plate, as there are no hard, clean lines to wipe against, but the merest suggestion of relief and depression.

As a result of large experience in this direction, I should say that it is easier to educate a printer from the start, than to put a steel-plate printer on to photogravure work. In the one case, an intelligent man learns easily what is required. In the case of the steel-plate printer, he has first of all to unlearn a great deal, and his methods, as used in steel-plate work, are continually cropping up, to his disadvantage, in the photogravure work.

There is no limit as to the variety of color to be used in photogravure plates, and all the devices open to mezzotint printing are open to photogravure.

Of the general results, it can only be said that they are sufficiently widespread to speak for themselves—care always being taken to guard against criticising photogravures as photogravures, which in fact are not photogravures at all. It can truly be said that the results in the reproduction of paintings and works of art, as produced by Goupil & Company, have never been excelled—possibly because a very large amount of artistic skill has been put into the finishing and completing of the plates, and, possibly, because the material available in Europe, for reproduction, is much more in excess of what is available in this country. On the other hand (if it is not too bold a statement to make) in the reproduction of the works of nature, in which this country excels, the photogravure reproductions are as easily first, as are the art reproductions of Goupil & Company, in their line.

It is impossible in a short paper such as this to do anything like justice to the subject, which, if it were possible, should be treated in much greater detail. It may be said, in conclusion, however, that the process of photogravure offers a wide and fascinating field for experimenters. The results are not difficult to obtain, in an experimental way. There is a fascination in the processes of etching and printing, and wide scope for the exercise of taste in the latter direction. Etching, as an amusement, has secured a firm hold on the affections of a large number of people of artistic instincts. There is no reason why photogravure should not be as fascinating and interesting to such a class, and the scope for taste, and for the display of artistic training is certainly as great as in etching. To those who should thus become interested in the ordinary details of the process, I would suggest the especial experimenting with one or two points, which do not seem, as yet, to be thoroughly satisfactorily determined. In the first place, efforts should be used in the direction of a more reliable production of the grained surface. Second: Steel would be a great improvement on copper, in many respects, if the difficulties attending its use could be overcome. Attention might also be given with advantage to the use of other than the existing etching fluids, and their preparation. And, lastly: Experiments are needed in the direction of other than the use of the highest quality of plate paper, which, at present, seems to be the only material on which the best results can be obtained.

The author will gladly give such hints or suggestions as may be in his power to those who desire to experiment in this fascinating branch of photography.

Ernest Edwards.

TALKEE, TALKEE, NO WORKEE.

(*Photographic Review of Reviews.*)

"Cosmos," of the *British Journal*, asserts that we are in danger of too much talkee, talkee. To some extent I feel constrained to agree with him, though in a slightly different direction to that implied in his caustic paragraph. It is not altogether to the papers at Conventions, Conferences and Congresses that I would refer to, but to schemes so elaborate in their nature or so sentimental in their conception that they are foredoomed to failure. They are so much "talkee, talkee," and that's all.

True, they serve to air certain men's proclivities for fame—such as it is—and raise them to the dignity of a top-hat. Their scheme is written about, criticized, and generally they receive a considerable amount of credit, besides the pleasure of seeing their names in the photographic press. The scheme may even be started and officers elected. All talkee, talkee. Nothing further results.

Upon the sentimental side must be placed the pretty little resolutions passed at the Convention and Congress in America. This fraternity, this feeling of unity, this desire to learn and teach each other is merely talkee, talkee. It is not a bad thing for a Convention or a Congress, and it will hardly do much harm. It affords the opportunity for the budding orator, it gives play to fine stretches of

imagination, and the tongue turns over the choice morsels of word-linking with gusto. It sends a thrill of patriotism and photographic enthusiasm through the body, we applaud, and perchance endeavor to go one better ourselves, in high-flown language as soon as the speaker finishes his oration.

It is nice to read how ardently the whole of Great Britain and Ireland, India, and all our colonies, are yearning for a complete photographic unification. It sounds well. And, moreover, how every English photographer is dying to fraternize with the Americans. The papers are full of it at the present time.

Still, but little harm will result, it will die down in a short while. Such resolutions and such speeches are merely bunkum, and the American is too wide awake to treat them as anything else.

My American friends will perhaps consider these remarks as showing bias against them and their nation. If they do they must, that is all. But I have no intention of so doing. Editorial friends over the water know full well, by the magazine itself and from the frequency with which the men and matters of America are therein dealt with, that I am no bigot of this sort. The criticism is leveled at sentimental talkee, talkee, no workee.

Let us look at union affairs in England. The Photographers' Benevolent Association has never been in a flourishing condition, in spite of the efforts of its hard-working officials. It is not supported in any reasonable way by photographers. The union of assistants was going to revolutionize the world, to effect wonders. It didn't, but fizzled out instead. The National Association of Professional Photographers seems doomed to perpetual impotency. Even the Convention is but a sorry show, considering the number of photographers in the kingdom.

Nevertheless, we must do a lot of big talkee, talkee, with friends over the water. Would it not be better to workee, workee, a little in our own country?

And how much do the rank and file of English amateurs and professionals alike concern themselves with the matter at all. To them it may be interesting talkee, talkee, but there it stops.

Then take these elaborate international schemes, what earthly chance have they? Even our own exchange of print agencies and surveys are always in a more or less languishing condition. A glance at the committee appointed will settle the question. They reside, severally, in England, America, India, France and Japan. This must be termed a very handy body--for work.

Why cannot we have more robust manliness in our photographic world, why all these inane little sentimentalities? The British Convention was bad enough, but the Congress at Chicago appears to have reeked with compliment and talkee, talkee. Not that it is at all new, but as the old Scotch proverb puts it

"An auld tout on a new horn is little minded."

Walter D. Welford.

ENVY.

To A photographer she went,
The pretty little Quaker,
If I were he I'd be content,—
She would not let ME take her!

SUBMARINE PHOTOGRAPHY.

[Science.]

SEVERAL of the difficulties experienced in endeavors to ascertain the natural relations of objects existing at considerable depths under water have been overcome by M. Louis Boutan, in a remarkably ingenious manner, and the contrivances he adopted are described in a recent communication to the Paris Academy of Sciences.

He prefers to use a small camera in which several plates can be exposed consecutively, and encloses this in a rectangular, water-tight metal box, into the sides of which plates of glass are inserted to serve as windows. The camera can be so disposed that the lens may face all the windows in turn, if desired, and exposures are regulated from outside the metal case. To avoid any ill effects that might be caused by differences in the internal and external pressure when the apparatus is sunk in deep water, a kind of balloon filled with air is connected with it. As the pressure increases, in descending, the balloon is compressed, extra air is thus forced into the box, and the pressure on its walls equalized. A stout foot to support the apparatus and weights to sink it complete it for practical purposes.

In water near the shore, not greatly exceeding one metre in depth, the apparatus can be conveniently fixed, without the operator needing to enter the water, and, by direct sunlight, good negatives can be obtained in ten minutes. When the water is deeper the operator must descend in diving costume to fix the case securely on its stand before commencing the actual work of photography. In calm, bright weather photographs can then be obtained by direct sunlight in from thirty to fifty minutes. Colored glasses, preferably blue, must be interposed between the objective and the water, in order to obtain sharp images.

By the use of artificial light to illuminate the surroundings, however, matters are still more simplified. To this end, M. Boutan has contrived a special magnesium lamp. A cask of 200 litres capacity is filled with oxygen gas, and on its upper end is fixed a spirit lamp, which is covered by a bell glass. A vessel containing magnesium, in powder, is connected with this lamp in such a manner that the metal can be projected across the flame by the action of a rubber ball which serves as bellows. The oxygen gas, of course, is intended to assist combustion, and the lamp, having been lighted and covered by its protecting globe, the cask simply requires weighting to sink it.

Good instantaneous negatives have thus been obtained by M. Boutan during a violent storm, when no daylight could penetrate the depths. They are lacking, as regards background, but this he attributes to imperfections in the apparatus, particularly the objective. He also found it necessary to place before the lens a diaphragm of very small aperture to secure a sufficient degree of sharpness. If a formula were calculated for an objective, the front of which might be exposed to sea water, he thinks these drawbacks might be remedied.

As it is, he has proved that photographs can be taken in a brief time under water, in calm weather, by direct sunlight, at depths up to six or seven metres; whilst, by the use of his special lamp, they can be taken, instantaneously, at any depth that can be conveniently reached by a diver, and the state of the weather is of no importance.

John Humphrey.

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

[British Photographic Convention.]

(*Continued from page* 554.)

This sensitometer is shown in the two photographs I. and II. It is of very simple construction. Photograph II. shows a back view of the sensitometer. It has a door A, which is shown open. Through this door a plate 12 x 2½ (one-quarter of a 12 x 10 plate), B can be introduced. The plate is held in a brass frame or carrier D that can be raised or lowered by the bar E, having a toothed or serrated edge. This bar is pressed by a spring in the direction of these teeth, so that it will remain at any of fourteen different heights, holding, of course, the plate with it. The spring F presses the film side of the plate very nearly into contact with the front of the sensitometer. In fig. I. will be seen a slit G, 2 inches in length and a ¼ inch wide. This slit is covered by the flap H, unless the same is held open by hand, as seen in the photograph. The apparatus is designed to give exposures to different tranverse strips of the plate of the size of the slit G in the ratios of 1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, and 8192. Many of the results of experiments will show that this range is not at all too long for investigating the effects of different developers on the two halves of the same plate, though the range is far greater than can be registered correctly; with any plate so exposed and developed, the strip having the shortest exposure is visible.

It was found by experiment that the shortest exposure that could be given with the flap varied very little and was nearly exactly one-quarter second. A half-second could be guessed with some approach to correctness, one second with more, and two seconds could be measured roughly with a stop-watch, four seconds with but a small percentage of error—all this after some practice, of course. It was therefore decided to make the exposures begin with a quarter-second, and work up doubling. It needs, however, only a very little arithmetic to discover that, even beginning at this short length of time, the last exposure must be considerably over half an hour, and to make hundreds of exposures of plates, in which the last item alone came to more than half an hour, was not to be thought of. For this reason the first exposures were all made a quarter-second each, but the distance of the plate at the time of the first exposure, 10 feet, was made 7 feet for the second, 5 feet for the third, 3 feet 6 inches for the fourth, 2 feet 6 inches for the fifth, and 1 foot 9 inches for the sixth, and all others. These distances vary very nearly as 1, $\sqrt{\frac{1}{2}}$, $\sqrt{\frac{1}{4}}$, $\sqrt{\frac{1}{8}}$, $\sqrt{\frac{1}{16}}$ and $\sqrt{\frac{1}{32}}$. That is to say, the quantity of light was doubled at each approach of the sensitometer to the source of illumination, all the exposures at 1 foot 9 inches from the light needed only $\frac{1}{32}$ of the time they would have needed at 10 feet, and the longest exposure was reduced to 64 seconds.

It is not pretended that the successions were really accurately those mentioned above, and it is of no consequence that they should be. Whatever irregularity there might be was bound to affect one-half of the plate exactly as the other, and, as the after process consisted in cutting the plates in half longitudinally and developing the two halves in different developers, the only thing essential is that the two halves of the plate should have exactly the same exposures.

Nevertheless I venture to state that the exposures of all those strips that were exposed at different distances gave very nearly the ratios mentioned, as the rapidest possible opening of the flap was found to remain very uniform, and a dead black screen was placed behind the light, to prevent reflection, which would considerably modify the law of the quantity of light varying inversely as the square of the distance, at any rate considering our light as the centre of illumination. The exposures half and one second are, of course, the most uncertain. From two seconds on, it may be considered that the acceleration is that stated, within very narrow limits of error. In no case did the light vary more than about 10 per cent. during the making of one set of exposures. The results of one set of exposures might thus be roughly compared with each other, even comparing different slips, but the necessity for this has been avoided by always developing together, in a developer that will be stated, one-half of each slip, so that any difference in exposure can be detected.

I have signed my name across each slip, before it was cut in two, that there should be no mixing up, and lest any should doubt the genuineness of the results. These plates would form a confirmation, were any needed, of the recent statement by an expert in handwriting, that no one can sign his name exactly the same twice, and that if too supposititious signatures, that exactly superpose each other, are discovered, it may be concluded that one is a forgery!

To return to the plates, however, as the vendors of various sauces, and other goods, remark, "Without this signature none is genuine."

As a light an oil lamp was used. I have found a common oil lamp, with burner in good condition, well trimmed, with a fairly large reservoir, and with a good quality of mineral oil, to be much more constant for several hours than any candle that I have been able to find, if it is first allowed to burn till all parts that heat have become hot. Of course it is not so good for making comparisons on different days, because the light of a lamp is very liable to vary from day to day. I wish, however, here to remind you again that the results of my experiments are in no way dependent on either the intensity or the uniformity of the light.

It was found that, using a well-known brand of commercial plate, sold as "ordinary," a small lamp of five to six candle power was just capable of giving a developable image with an exposure of one quarter of a second at a distance of ten feet.

I have certainly at times worked exceptionally rapid plates that needed only one-fifth to a sixth of the exposures of these. We may, therefore, deduce the fact—by no means bearing on these experiments, but of some interest—that the most sensitive plates made will be visibly affected by an exposure of a mere fraction of a second at ten feet from a candle.

The greater number of the exposures were made with such a lamp as this, but in some cases, where it was considered advisable that the first figure in the sensitometer, in the sense of the first exposed, should develop out quite markedly, the exposure was made to a lamp with a burner giving a nearly spherical flame (called, I think, a "rose burner") having a power of some 20 to 25 candles.

W. K. Burton.

(*To be continued.*)

Correspondence.

To the Editors of THE PHOTOGRAPHIC TIMES.

Gentlemen: I was much interested in reading the article in THE PHOTOGRAPHIC TIMES of August 18th, 1893, on Films as relating to Amateur Photography, by G. D. Milburn, particularly in the statement contained therein, "considering that manufacturers have made complete failures of producing the commercial article."

In 1888 I made a roll of so-called celluloid film, and showed it, or pieces of it, to several well-known firms.

Judging from the correspondence (which I have preserved), I think it quite possible that this roll was the first that had ever been seen by the several parties referred to, inasmuch as I have written propositions from *each* one of them looking to the purchase from me of the material or the knowledge to manufacture it.

My object in making this statement is merely to give some weight to the following, viz.: That I hold the same opinion now that I did in 1888; namely, that a perfectly satisfactory film can be made of pyroxyline, and that the failures referred to by Mr. Milburn are not inherent in the problem; but are due to a lack of knowledge on the part of manufacturers as to the proper solvents to be used and the proper conditions to be observed.

Yours very truly,

E. N. Todd.

Notes and News.

A Photographic Manufacturing Company is being established with factories near New York, having unsurpassed facilities for the manufacture of photographic goods. They are about to place upon the market the New Harvard Plate, unexcelled in sensitiveness and reliability for portraits, landscapes, and general work.

Will the two subscribers who kindly sent us photographs entitled "The Farmer's Noon-day Spell" and the "Forest Park" please send name and address.

The Duchess of Saxe-Coburg-Gotha, widow of Duke Ernst, who died a few weeks ago, has decided to live in the Castle Kaltenberg, a picturesque old pile. The Duchess is greatly interested in photography, and with an apparatus presented to her years ago by the Duke has photographed some of the most beautiful spots in the duchy. The late photograph of the Duke, taken a few days before his death, was made with the Duchess's apparatus.—*Daily Paper.*

Balloon Photography.—The popular feature of last night's meeting at the Franklin Institute was an exhibition of the results of some recent experiments in balloon photography by Mr. Wm. N. Jennings, of Philadelphia.

Mr. Jennings was one of the party who accompanied Professor King in the ascension made in the "Eagle Eyrie" from the Park, on July 4th last.

The views, 25 or 30 in number, were shown upon the screen by means of the optical lantern, and Mr. Jennings explained them in his characteristic bright manner. Instead of following the method of some of the French experimenters, who made their negatives with the plate parallel with the earth's surface, with the result of producing a strained and unnatural effect, Mr. Jennings made the "eye of his camera" see the views as he saw them. In consequence of this the various views were perfectly natural, and the objects thousands of feet below are seen in their natural positions. The definition in the various views was wonderfully clear. A small portion from the centre of one of the negatives was enlarged and the details were as clearly brought out as could be desired. Mr. Jennings pointed out that this experience showed that with the use of one of the modern tele-photographic objectives it would be possible to make clear balloon negatives of objects 25 or 30 miles distant, and that the practical value of such a power in military operations was obvious.—*Public Ledger.*

Mr. Wuestner, the well-known manufacturer of the "Non-Halation" and other plates, sends us the following letter which he has received, and which we publish as being interesting, as it gives an Englishman's opinion of American plates:

NO. 15 WALL STREET,
NEW YORK, September 22, 1893.

Dear Sir: I was requested by a friend from Manchester, England, who was over here last summer, to send to an amateur friend of his in Manchester some photographic plates of American manufacture, which he could use for fast work in smoky, foggy weather. I sent him some of your fast orthochromatic plates; and my friend, who returned to Manchester about a month ago, sends me the following in reply to my request to let me know how his friend liked them:

"MANCHESTER, September 13, 1893.

"DEAR MR. COUTANT:

"I have seen the photographic gentleman to whom you sent the slides and the plates.

"He told me he had never seen anything like the 'lightning plate.' They surpassed not only every English plate, but also his utmost expectations, and he is ever so much obliged to you.

"Yours truly,

"HARRY COUTANT.

Simple Tests for Impurities in Water.—The following methods of determining the presence of impurities in water are given by Walling: 1. For organic matter put a little of the sample into a beaker, add two or three drops of dilute sulphuric acid and color distinctly with a solution of permanganate of potassium. If much organic matter is present the color of the permanganate becomes discharged almost immediately; if less or very little, it takes longer to decolorize. If the color has not changed in twenty-five or thirty minutes it is safe to assume that organic matter was not present. This is a tolerably reliable test: 2. For nitrites, a little sulphuric acid added to the water forms nitrous acid if nitrites are present, which is easily detected by its power of liberating iodine from iodide of potassium. A little starch paste is mixed with a small quantity of a solution of potassium of iodide, and the mixture added to the suspected water containing the sulphuric acid. If nitrites are present the nitrous acid formed liberates the iodine from the iodide, which turns blue with starch. This indirect method is a ready means for detecting the nitrites if present in not too

small a quantity. 3. Nitrates are detected by converting into nitric acid, which turns morphia red. A portion of water is evaporated to dryness, the residue treated with a drop of strong sulphuric acid (which makes nitric acid of the nitrate) and a portion of morphine added. If nitrate is present the morphine gives red color. 4. For ammonia, Nessler's reagent is by far the best test. It may be made by dissolving 18 grains of oxide of potassium in a little water, adding solution of mercuric chloride until the red iodide of mercury first formed redissolves upon agitation. To this is added a solution of 50 grains caustic potassa and distilled water to make 8 ounces. This reagent will detect 0.00375 of a grain in a pint of water by giving a yellow color. A reddish color or precipitate forms with larger quantities of ammonia. 5. Albuminoid matter requires a more elaborated proceeding for its detection, If all of the above were found it is hardly necessary to go to the trouble of looking for albuminoids; the water would be unwholesome even if they were not present.—*Pharmaceutical Era.*

The Editorial Table.

From Mr. John Carbutt we have received one of the finest cloud studies we have seen for some time. It was taken on a Carbutt plate and is a good example of what it is possible to produce on these excellent productions.

Popular Astronomy is the title given to a new monthly emanating from the Goodsell Observatory of Carleton College with Messrs. Wm. W. Payne and C. R. Willard as editors. We have no hesitation in saying that this is the very thing wanted. It deals with the science in a simple lucid manner that every one can understand, The first number contains an article on "Astronomy with a small camera," which should be of interest to all photographers.

Das Atelier und Laboratorium des Photographen. By Dr. Josef Maria Eder. Supplement to the first volume of his "Ausführlisches Handbuch der Photographie." Publ. Wilhelm Knapp, Halle, o/S.

After treating, in another part, upon the construction of photographic apparatus, the learned author describes in the present work the building and lighting of the operating room, and the construction of the glass house. Much attention is paid to the application of shading or reflecting screens, the dark chamber and printing-room, and all branches of work performed there receive the author's minute attention.

The book is a continuation of the author's great Handbook on Photography and closes its first volume.

Record of Photographic Patents.

505,111. Photographic Printing Frame. G. W. Low and W. Shakespeare, Jr., Kalamazoo, Mich.

505,331. Negative and Screen-Holder. James Scouler, San Francisco, Cal.

Quarterly Competition No. 1.—Entries received this week—Vilitte, Ahasber, Odysseus, Petre Schlemill, Gnihad 9538, Daisy Doan (6 sets), Fiend, St. John's, Gil Blas, Zero, Winthrop, Dudley, Jupiter, Fool, Nails, Sniblets, Arion, Leo de Mille, Ad astra per Aspera, Mohawk, Puck, Danacott, Wakie, Ikonist Hennepen, Iona, Bitter Sweet, Monte Cristo, A Fairy Jason 1, Jason 2, Chimes, Norman, Kyles, General Priscilla, Sehalic, Lex. 1, Lex. 2, Alpha, Hermes, Graveyard, Molly O'Neil, Lamb, Indigo 1, Indigo 2, Pink Spot, Red Spot, Green Spot, Cuckoo, Netento aut Perfice, Spa, Arcturus, Balicha, Harmochis, Housatonic, Fitzroy Somerset, Conestoga, Haymakers 2, Hopeful, Ike O'Come, Jack Bearskin, Country Fack, Kidd, Tempo, Eagle, Dude, Solomen Peel, Appeles, Martha Washington, Bug, Ad Valorem, Arline, Spero, Phos, Badland.

Reply to S. We agree with you and have changed your *nom de plume.*

Queries and Answers.

143 F. W.—1. In a recent article on "Kloro" paper where formula for working is given, would like to know if the prints could—or a part of them—rest in water—or any solution—between the fixing and toning solutions. In fewer words, could, say, 100 prints be fixed, the hypo drained off and be removed to tray with clear water, then proceed to tone, say, in four batches of 25 each, one batch after another?

2. How many cabinet prints would the 8 ounces of toning bath there given tone with safety to the permanency of the prints?

3. How long would "solution 1" there given keep as a stock solution, or would it have to be mixed up fresh every time?

4. Would prints have to be removed from "Checking Solution" in one or two minutes, or could they remain there while two or three batches were being toned, then all taken out together to wash?

5. Can negatives be reduced or intensified that have been treated with Helmold's hardening mixture?

143 *Answer.*—1. There is no reasonable objection to doing so.

2. One grain of pure chloride of gold is computed to tone about ten 5 x 8 prints.

3. Solution I, or stock solution, keeps. Solution II. should be kept in the dark. Light decomposes the solution of chloride of gold.

4. If there is a large quantity of checking solution, say, one gallon, you can wait till your 100 prints are toned, otherwise it is better not to leave the prints too long in it.

5. The Helmold mixture hardens the gelatine film considerably, as you know, and for that reason it will take a long time before either intensifier or reducer will act.

144 JANE G.—What is the literal meaning of the word "focus"?

144 *Answer.*—"Focus" is the latin for "hearth" or fireplace, or optically the point where light and heat rays meet.

145 OKLAHOMA.—Can Kloro paper be toned and fixed in Ehrmann's combined bath?

145 *Answer.*—It can, but we prefer Mr. Milburn's method of fixing the print first in a pure hypo solution. This will do away with many annoyances complained of with this bath.

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It has been written for the most part in the leisure hours, after practical service during the day in a photo-engraving establishment, so that the instruction goes directly from the shop to the pupil. It has been the author's hope, in writing this book, to so carefully describe every branch of work connected with the subject, that the beginner, who knows absolutely nothing about it, may become a practical photo-engraver from a careful reading of the work.

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CHAPTER V.—Causes of Failure.—Remedies.
CHAPTER VI.—The Half-Tone Process.—Screen Plates.
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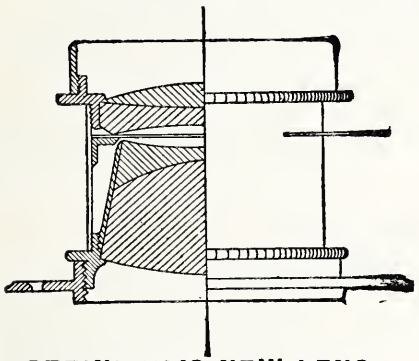
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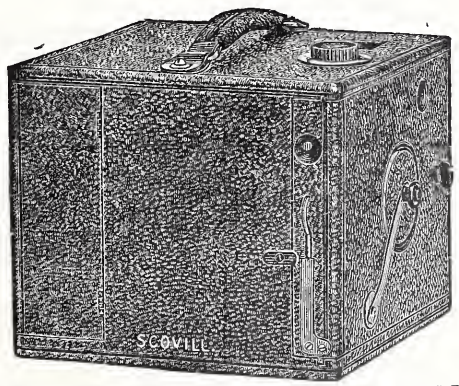
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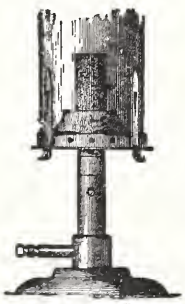
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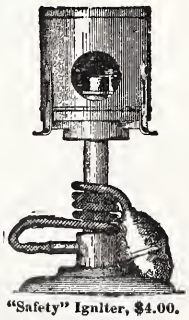
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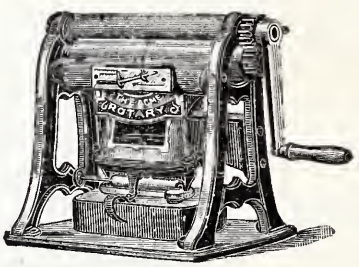
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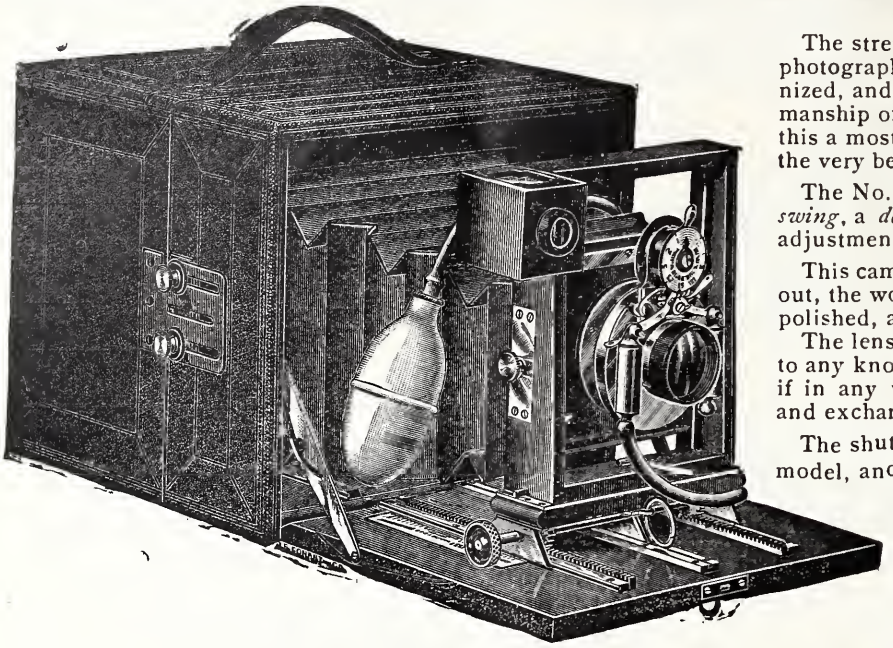
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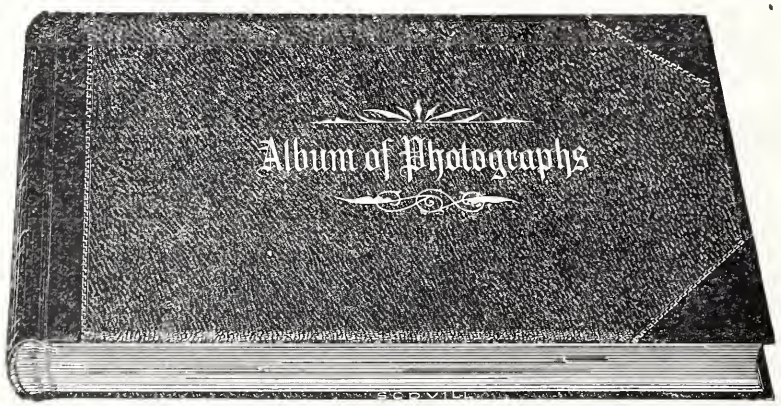
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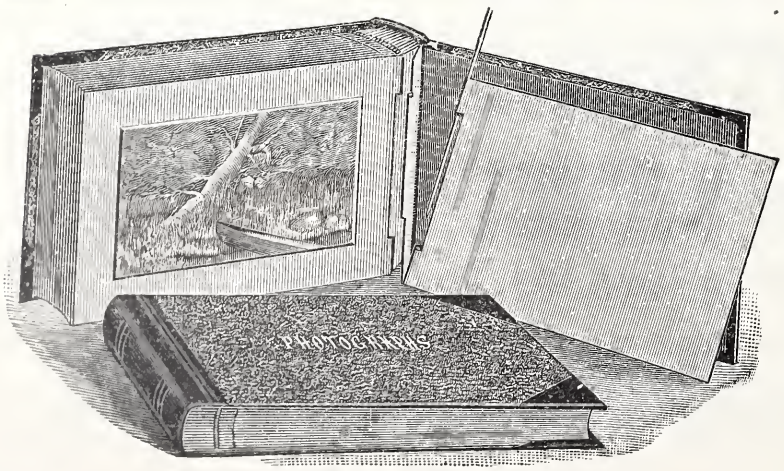


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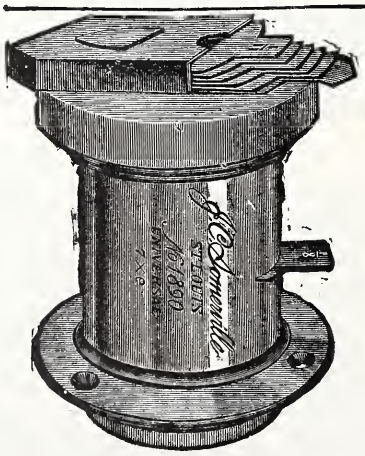
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This Lens requires much less "stopping down" than other instruments.

OUR NEW SYMMETRICAL LENS.

The front and back combinations being perfectly symmetrical, superior marginal definition and perfectly even illumination of the plate can be obtained, and with the same length of focus as heretofore a larger field is covered and the size of the image increased, the resulting picture being absolutely free from distortion.

No.	Diameter.	Focus.	Size Plate.	Price.	With Iris Diaphragm.
1	1 5-16	7 1-2	5 x 7	$20 00	$25 00
2	1 11-16	10 1-4	7 x 9	30 00	35 00
3	2 1-8	12 3-4	8 x 10	40 00	47 50
4	2 7-16	14	10 x 12	50 00	60 00
5	2 11-16	18	12 x 15	60 00	70 00
6	3 3-16	21 1-2	16 x 20	75 00	85 00

IF YOU ARE IN WANT OF A LENS

Be sure to try our LENS before buying.

Will be sent subject to 5 days trial, and, if not satisfactory returned at my expense.

Send for Pamphlet and see what is said regarding them for Portraits, Groups, Large Heads and Views.

THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.



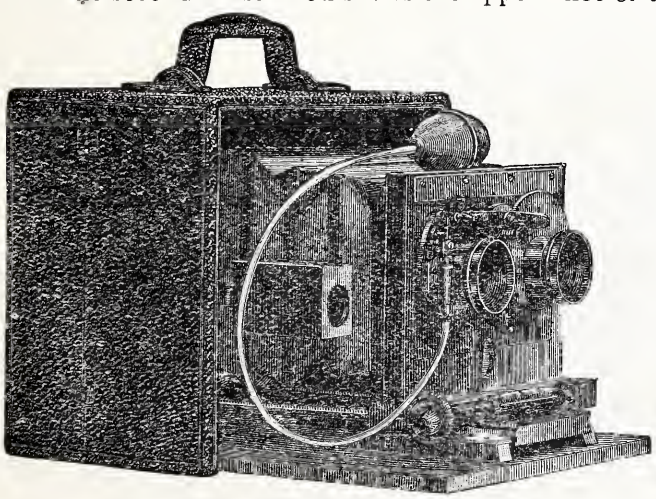
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release,** $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front,** . $80.00

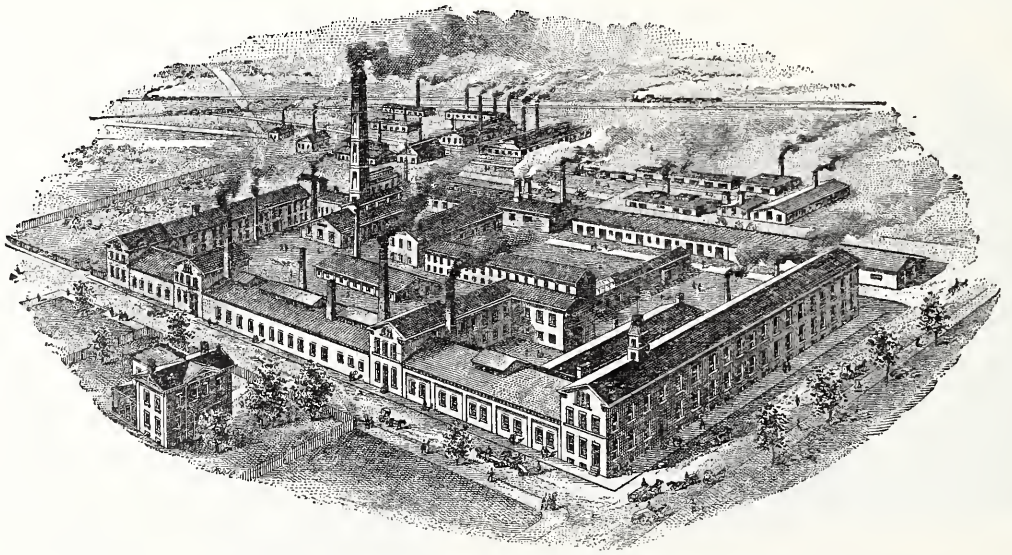
A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

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would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

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MANUFACTURING
CHEMISTS and REFINERS
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Works at **NEWARK, N. J.**

"What Jackson Says."

DENVER, COL., Feb. 13, 1893.

G. Cramer Dry Plate Works, St. Louis, Mo.

GENTLEMEN: Yours of February 12th is at hand. We send you to-night, by express, a dozen 17 x 21 views, mounted, and two panoramas. We would have preferred to have had a little more time, and to have printed these expressly for you, but even as it is, I think you will find the selection a very good one. Nearly everything we have made lately has been on Isochromatic plates, and these, it is almost needless to state, have given us the most complete satisfaction We now consider them indispensable for all outdoor work.

Yours truly,

W. H. JACKSON.

From the World's Fair.

Extract from a letter from Mr. B. W. Kilburn, who has the exclusive privilege of making stereoscopic views at the World's Columbian Exposition;

LITTLETON, N. H., April 7, 1893.

GENTLEMEN: I had fine success using your plates, and it is solid comfort to have a stock of such plates on hand; it gives courage, and you know to a nicety what is possible.

I did not lose One plate in Two Hundred and Ninety-two exposures, all Cramer's, from any fault in the plate, while in Chicago this last time.

Yours very truly,

B. W. KILBURN.

Official Photographer.

WORLD'S COLUMBIAN EXPOSITION,
DEPARTMENT OF PHOTOGRAPHY,
CHICAGO, July 5, 1893.

G. Cramer Dry Plate Works, St. Louis, Mo.

GENTLEMEN: After having used more or less of all the best brands of American dry plates, and yours exclusively since September last, I find the Cramer is the most reliable, runs most even, and gives results not to be obtained by any other dry plate.

Very truly yours,

C. D. ARNOLD.

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Scovill & Adams Co.

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Practical Photographer,
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Tripods	Hand Cameras	Photographic Apparatus.

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The Scovill & Adams Company.

W. IRVING ADAMS, *Pres. and Treas.* H. LITTLEJOHN, *Secretary.*

"STOP"

right where you are! Do not turn another leaf until you have read every word on this page. We feel a delicacy in publishing the following, lest it may hurt someone's feelings, but we must consult our own interests and publish the facts "verbatim" as they come to us. We do not, as a rule, favor publishing testimonials, as we are not in the "patent medicine" business, but the following, being so overwhelming and wholly unsolicited, we feel that we are at liberty to publish it. So here you have it:

APRIL 15, 1893.

The Obrig Camera Company, 119 *Broadway, City.*

GENTLEMEN:—Having had some trouble with Aristotype Paper, we wished to select the best commercial paper that we could find. For this purpose I purchased a package of each of seven kinds of paper, namely:

SOLIO, PERFECTO, PARAGON, ARISTO, OMEGA, B. & P., N. Y.

As we wish to select the paper for photographing in our manufactory, as well as for other purposes, we wish one that could be developed with a simple bath. Prints were made of each of these papers in the ordinary manner, and toned in a plain bicarbonate of soda bath. Of these papers the Perfecto was decidedly the best paper of all that we tried. It was pleasing in toning in printing, pleasing in every operation that was performed, and will be adopted by us, and continued as long as the quality continues what it is.

It may interest you to know that next to this paper, in convenience and results, was the Solio paper made by Eastman. Please send us four dozen 5 x 7, two dozen 6½ x 8½, one dozen 8 x 10 Perfecto paper. We shall be pleased to have this as soon as you are able to obtain it.

Yours truly,

G. W. HUNT COMPANY,

C. W. HUNT, *President.*

I enclose a print on "Perfecto" paper.

The Loucks Aristotype Company, Jamestown, N. Y.

GENTLEMEN:—I recently purchased the various papers in the market, the most of them from the Obrig Camera Company, in order to see which was the most available for our use. I enclose you a letterpress copy of my letter to the Obrig Camera Company, stating the results of that experiment, thinking that you might be interested to know.

Yours truly,

C. W. HUNT COMPANY,

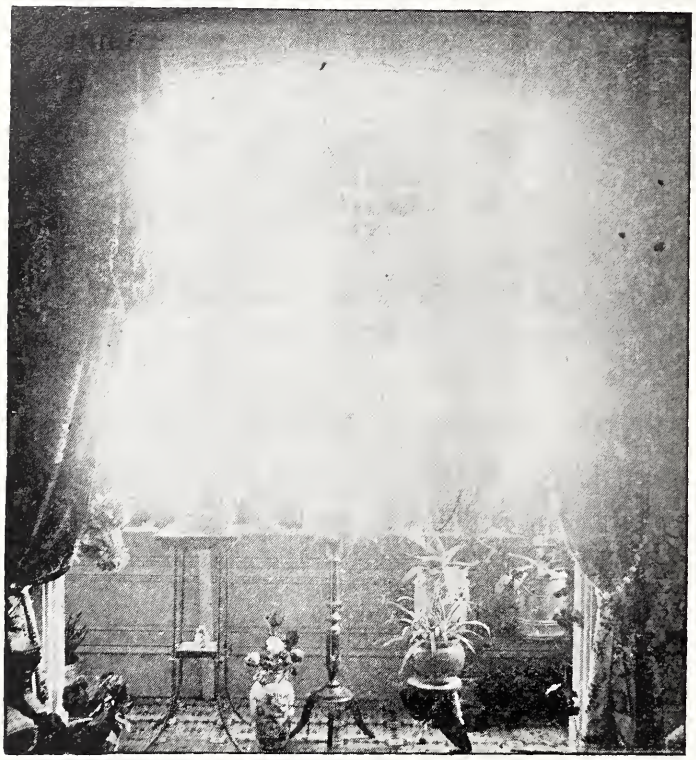
C. W. HUNT, *President.*

The above C. W. Hunt Company is the largest concern of the kind in the country, and what they have to say may be relied upon.

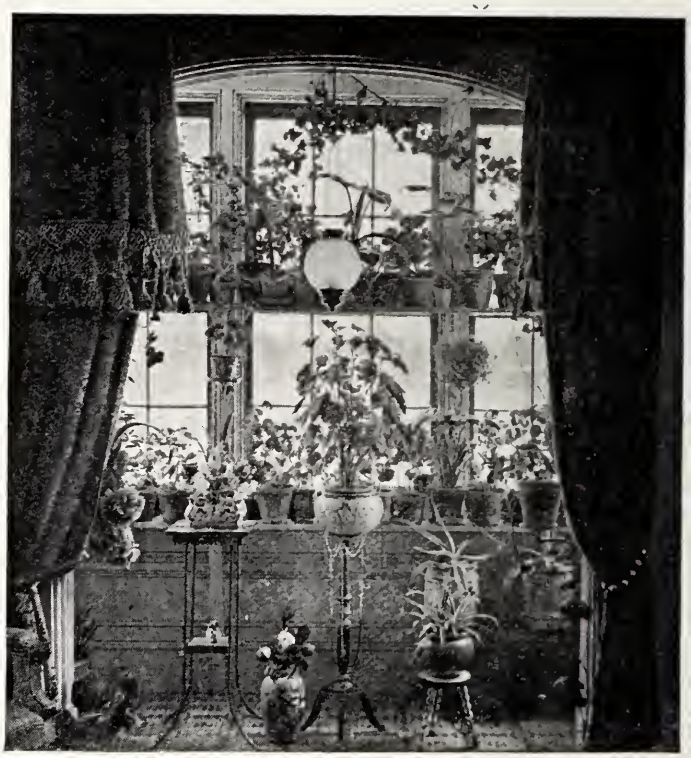
Wuestner's "Imperial Non-Halation" Plates.

LOOK ON

THIS PICTURE and ON THIS!



Reproduced from Negative on ordinary Plate.



Reproduced from Negative on "Imperial Non-Halation" Plate.

Both Negatives Exposed on the same Subject, one immediately after the other.

Note the Contrast!!!

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Dozen in Case.	Sizes.	
39	3¼ x 4¼	$0 55
24	4 x 5	80
24	4¼ x 5½	90
28	4¼ x 6½	1 10
22	5 x 7	1 40
22	5 x 8	1 55
12	6½ x 8½	2 10
12	7 x 10	2 70

Dozen in Case.	Sizes.	
12	8 x 10	$3 00
3	10 x 12	4 75
3	11 x 14	6 25
2	14 x 17	11 25
1	16 x 20	15 75
1	17 x 20	16 25
1	18 x 22	19 50
1	20 x 24	23 50

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Gives Pure Whites Made in Pearl or Pense Gelatine Emulsion

Mr. C. E. HOPKINS, Brooklyn, N. Y. DAYTON, VA., April 18, 1893

Dear Sir:—I have been using your Omega Sensitized Paper for some time, and like it very well.

Yours respectfully, J. S. FISHER.

Mr. C. E. HOPKINS, Brooklyn, N. Y. JACKSONVILLE, FLA., Feb. 23, 1893.

Dear Sir:—The Omega Paper received in due time, and am very much obliged for your promptness. This is the finest paper I have had yet, and will undoubtedly use a large quantity. Yours works finer than any I have ever used, and shall do all I can to push it for you. Yours respectfully,

P. FREMONT ROCKETT.



Omega Cabinet Papers,

$3\frac{7}{8}$ x $5\frac{1}{2}$ inches, $1.75 per gross.

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52d and 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Send 25 cents for sample 4 x 5 package of either above papers.

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Of the older printing methods should not receive its proper recognition among the Photo. public.

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ALL OF OUR TISSUE is packed in a manner which will fully preserve it for years; it is of a smooth, even texture, and will not crack.

It is equally acceptable to the amateur as well as the professional.

We furnish full directions, fully describing the developing and transferring process, making it especially plain. It will be of interest to photographers, however, who care to examine into the merits of carbon, to call upon us and an experienced man will give full explanation and instructions, if its adoption is intended.

UPON RECEIPT OF TWENTY-FIVE CENTS we will send sample photo. in any color desired, with descriptive circular and detailed price list.

THE PHOTO. SUPPLY M'F'G. CO.,

52d to 53d Sts., near Fifth Ave., BROOKLYN, N. Y.

Our Declaration of Independence.

WHEN in the course of photographic events it becomes necessary for one manufacturer to take a separate and distinct position among other manufacturers in the trade, by reason of a certain combination, trust or agreement between these firms to control the price and terms of sale of photographic printing-out papers in these United States, it becomes necessary and important to photographers that they should know that we are not a party to, nor in accord with, any such compact and we hereby declare ourselves to be FREE AND INDEPENDENT of it.

If, therefore, you have been using our N. Y. Aristotype Paper (gelatine), or our Kalona Paper (collodion), the price of both being $1.70 per gross, cabinet size, and find that your orders for either of these papers are being filled with an article that costs you $2.00 per gross, you may feel assured that your dealer is in sympathy and acting with this arrangement of trying to force you to pay this price for your Aristotype Paper.

Will you consent to such an outrage and have this trust dictate what paper you shall use?

The following is a verbatim copy from a circular sent by some of the members of this combination to the photographic trade:

"No discounts will be allowed to dealers who either sell our paper or any other emulsion printing-out paper at less than the list prices above mentioned; or who handles any such paper sold by its manufacturers at less net prices than above mentioned."

(The list price above referred to is $2.00 per gross Cabinets, etc.)

If your dealer writes you when you order N. Y. Aristotype Paper or Kalona that he doesn't keep it, or can't get it, or give some other vague or indifferent reason for not having it, send us your name and address and we will tell you where you can procure it, or we will supply you direct.

If you have not being using our Papers, we feel sure that there is a want in your work that has not been supplied. It is for a paper that is uniform and reliable and that will under ordinary intelligent manipulation give you fine permanent pictures. We make both kinds of papers, collodion and gelatine, and we are the only manufacturers in the country that do so. Let us know what kind of paper you are using and we will be pleased to send you a sample of a similar paper that will give you superior results and WILL COST YOU LESS MONEY.

Remember our papers and products are not controlled by any agreement, compact or trust (so-called) of manufacturers, or by any photographic stock house.

WE ARE FREE AND INDEPENDENT.

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The prizes in the $1200 Kloro contest for the best pictures at the Photographers' Convention, recently held in Chicago, were awarded as follows:

CLASS A.—	**1st Prize,**	**$500.**	**Resch, St. Louis, Mo.**
	**2d " **	**$150.**	**S. L. Stein, Milwaukee, Wis.**
	**3d " **	**$100.**	**Scott, Chicago, Ills.**
CLASS B.—	**1st Prize,**	**$150.**	**Cornell & Saunders, Rochester, N. Y.**
	**2d " **	**$75.**	**Root, Chicago, Ills.**
	**3d " **	**$50.**	**Uhlman, St. Joseph, Mo.**
CLASS C.—	**1st Prize,**	**$100.**	**Stimson, Appleton, Wis.**
	**2d " **	**$50.**	**H. Levin, Chicago, Ills.**
	**3d " **	**$25.**	**Hatton, Evansville, Ind.**

THEY ALL USE IT, WHICH THE FOLLOWING LETTERS WILL SHOW:

S. W. PERRY & Co.,
Photographic Outfits and Supplies,
BEREA, OHIO.

BEREA, OHIO, July 11, 1893.

The Photo Materials Co., Rochester, N. Y.

GENTLEMEN:— * * * * * * * * * * * * * * *

We divided up the gross of Kloro and gave it out to the different photographers here, and to several amateurs. The results, so far as they have been observed, are excellent. We believe you have the best paper on the market.

About the first of August we shall put in a stock of Kloro and sell it regularly. We have completed arrangements with one of the leading photographers to use it exclusively.

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Truly yours,
S. W. PERRY & CO.

C. H. MILLER,
Official Photographer American Hackney Horse Society,
Late Official Photographer Philadelphia & Reading R.R. Co.,
3400 N. Nineteenth Street,

PHILADELPHIA, PA., August 8, 1893.

The Photo Materials Co., Rochester, N. Y.

GENTLEMEN:—Please send one gross Kloro paper (size, 7 x 9), and another large bottle of the combined toning solution. The last gross of paper I got from you was splendid, and I shall use no other in future.

Very truly yours,
CHAS. H. MILLER.

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Manufacturers of Photographic Specialties, **ROCHESTER, N. Y.**

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Because it **BRINGS BUSINESS.**

SUPERIOR TO OTHER PREPARED PAPERS.

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(Signed) G. M. ELTON.

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Bromide Papers.

Standard, for thin negatives.

Extra Quick, for strong negatives.

Eureka. Moderate Prices.

Enameled, { **Hard**, for thin negatives. **Soft**, for hard negatives.

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NEW YORK.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION

423 BROOME STREET.

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E. EDWARDS, PHOTO.

FROM THE BATTERY, NEW YORK

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. OCTOBER 13, 1893. No. 630.

FROM THE BATTERY.

OUR illustration this week is the work of Mr. Ernest Edwards. It is a scene from the Battery, showing the Statue of Liberty in the distance. The lighting and cloud effects make up a charming picture.

SHOULD PHOTOGRAPHIC PRINTS BE FIXED IN THE DARK?

THE question can only be answered affirmatively, because the same processes occur in fixing albumen or gelatine prints, as do on negative plates, with a gelatine or collodion basis.

We refer to the formation of the two argentic-sodium hyposulphites, one of them soluble in water, the other not so, but both being sensitive to light, and of which mention has been made in a previous article. It was said there, when hyposulphite does not exist in excess in the fixing bath, the insoluble salt will be formed, and the soluble will occur at a certain stage of the fixing process. When that is arrived at and the insufficiently or but partially fixed negative is removed to daylight, yellow stain on the unfixed or but partially fixed portions of the negative is a sure result, not necessarily perceptible at once, but surely so within a day or so.

When a chloride of silver gelatine and albumen or plain-paper print is subjected to the same treatment, all other conditions being analogous, the same effects must necessarily occur.

Many operators insist on fixing prints in daylight, for which proceeding there cannot possibly be an excuse, although by a certain inexplicable intuition they subdue the light so much that the whites of the print are not injured or turned gray. That is their only salvation, and, as they invariably handle the print when in the bath in a face-down position, light that by longer exposure would most certainly show an action upon the double salts of hypo and silver when forming, is in a measure prevented from doing so.

These observations relate mainly to gelatine negatives, to gelatine positives or plain-paper prints. Older photographers say yellowing due to sulphide of silver does not occur with collodion films, because of their greater tenacity and impermeability, which retards the sinking in of the chemicals used. But that is a great error. The collodion film is of a spongy nature, as we have learned through several of the collodio-albumen and collodion-honey processes, not as porous as a softened or swelled gelatine film, but sufficiently so to retain within its pores enough of the chemicals used in developing and fixing as to injure its durability.

Collodion negatives fixed in hypo have turned yellow just as much and as often as our gelatine plates do nowadays when improperly treated, and the effect of sulphurization disappeared from them only when hypo was discarded and cyanide of potassium was adopted. Cyanide fixes a collodion plate probably more efficaciously than hypo; it keeps the dissolved silver haloids in solution without material change, while with old, or several times used hypo solution, and under certain conditions, the above-mentioned double salt is formed and remains in the bath.

At the present time much more attention and care is paid to the fixing of negatives and prints than in the old times, when a fixing bath for negatives or a combined fixing and toning bath for plain or albumen prints was renewed but once in a week or two weeks, and when a prosperous atelier printed from 100 to 150 sheets of paper per day or made from 80 to 100 negatives.

That under such circumstances yellow stain in course of time was the rule and not the exception is not difficult to understand.

The same effects were obtained upon the earliest glass negatives, those of the beautiful albumen honey process. Of the few albumen negatives

still in existence, every one has turned brown. We did not know the importance of proper fixing at that time.

The advocates of collodion aristo papers, those who assert the method to be productive of absolutely permanent results are also somewhat in error, for with them the same effects are produced by the same causes.

Albumen prints, owing to the solidity and firmness of the coagulated albumen stratum carrying the sensitive substance are less apt to turn yellow on account of the solidity. In the albumen print the picture rests on the surface ; with gelatine it sinks in, and that it is not at all superficial on collodion can be easily seen when examining a stripped collodion film. With plain paper sized or not sized it cannot be different.

It will be seen, then, that all our popular methods of silver printing carry with them the condition for instability, unless all possible means are exexhausted to prevent their becoming active. One of them, the most important, is to exclude light as much as possible when the prints are fixing. To effect a perfect solution of the hypo double salt a second fixing bath is also here advisable, and to prevent the formation of the argentic sodium hyposulphite and the effects of light upon it, fixing in the dark becomes a necessity. We are of opinion that a stronger light may be used for toning a print than for fixing it.

OUR SECOND COMPETITION.

IN another column will be found the particulars of our second competition, and it will be noticed that several important changes have been made. First, in place of apparatus, silver and bronze medals will be given. These we feel sure will be far better appreciated as lasting tokens of skill than any perishable article. We shall make it a rule that where the judges decide that the work is not of sufficient merit, the medals will not be awarded. By this method the value of the prize will be considerably enhanced. We have long been opposed to the indiscriminate distribution of medals in this and other countries. By such a procedure the awards carry with them no honor at all.

The possession of THE PHOTOGRAPHIC TIMES' medals will be a sure guarantee of high meritorious work performed, and recipients will have a right to be proud of their performance.

Another change will be found in the length of time allowed. Three months we have been led to believe is too short for many competitors. Further, the overwhelming success of our first competition has rather frightened the staff. The amount of extra work entailed in the matter can hardly be conceived.

We would like to point out to competitors the necessity of adhering strictly to the rules laid down. Although we endeavored to make these as clear as possible, many made mistakes. We stated that "no indication of the competitor's identity was to be placed on the competing pictures," but, notwithstanding this, several wrote their full names and addresses on back and front. Others sent no coupon. Pictures were received without any clue to the sender. "A *nom de plume* (initials debarred) should be written on the back of each picture" was another rule. One enterprising gentleman took our meaning literally with a vengeance. He wrote the words "A *nom de plume*, initials debarred" on the back of each picture. Others merely placed their names backward. These were altered, however, before handing to the judges.

It will be seen that the subject of our next competition is "general landscape." This embraces a wide enough field and should give everyone a chance to enter the lists. Figures can, of course, be introduced, but, if so, they must be subservient to the landscape ; that is to say, the picture must not be more of a figure study than a landscape.

We shall be quite satisfied if the same amount of interest is taken in this competition as in our last.

EDITORIAL NOTES.

PHOTOGRAPHY is apparently playing an important part in a recent mystery in England, where there is an uncertainty whether a man shot himself accidentally or whether he was shot by another. Pictures have been made of all the different articles connected with it, and the different scenes where the murder was committed. Even a boat, which it is alleged a plughole had been made with a view to scuttling it, has been placed before the tell-tale camera.

THE art of photography can undoubtedly become one of the greatest aids to justice. Unfortunately, however, it has been much abused, so that judges and juries often decline to consider, and rightly too, that a photograph is indisputable evidence of a fact. It is a well-known fact, that by simply employing lenses of different angles two widely dissimilar results can be shown.

We remember a case that once came under our notice. It was a right of legal dispute. The plantiff claimed that the defendant had caused an immense wall to be constructed so high that it entirely obstructed his view, and diminished the amount of light considerably. In proof of his statement he produced in court a photograph of this immense wall quite close to his house and obstructing more than half of it. The judge was satisfied, and was about to declare a verdict in his favor. The counsel for the defendant, however, rose up quickly and applied for a few days' postponement to allow them to produce their photograph of the scene. This was granted, and at the next sitting of the case photographs were produced showing to the bewildered judge a very different view of the matter. In this photograph the wall was some distance from the house, and of such insignificant proportions as to be absolutely harmless in any way.

It was not surprising that the learned judge declined to place any faith in photographs and went down and viewed the property personally before giving his decision. Of course he soon discovered that neither photograph gave a truthful representation of the scene. One had been purposely exaggerated in one direction and the other in the opposite way. To be of any value as evidence it will be necessary to employ a skillful and honest photographer (this should be a government office), who will be compelled to use instruments of a certain angle in every case, such angle corresponding as nearly as possible to the angle of vision.

We are told that a temperance society has inaugurated a new movement. During the later hours it despatches agents provided with a flash-light apparatus and a detective camera. The object will be to make photographs of men who have overstepped the boundary or overestimated their capacity for imbibation. The society hopes by showing the unlucky individual these portraits of himself embracing a friendly lamp-post, or in other ridiculous attitudes, he will be led to reform from his evil ways.

We regret to notice that the editor of the *Photo Beacon* has also been attacked by the "green-eyed monster," for he too talks about World's Fair photographs, of which he "shall engrave and publish just as many of them as we choose without giving a thought to the official photographer." Of course he can; but only 4 x 5 or smaller sized photographs made with a hand camera *without a tripod*. So can anyone else. If he should attempt to photograph on larger sized plate with a tripod, however, he would decidedly have to give a "thought to the official photographer."

The World's Fair official photographer has made a magnificent panoramic picture in the World's Fair with the Scovill panoramic camera, showing nearly the entire wooded island with the picturesque Japanese village nestling among the trees, taking in the Illinois State Building on one hand and the Government Building on the other, with all the intervening buildings. This fine specimen of the panoramic picture has been framed and is hanging in the office of The Photographic Times, where it may be seen by anyone who may call.

"Metol is an extremely poisonous and dangerous substance." So reports Herr A. Bernhard in the *Deutsche Photographen Zeitung*. He and his business associates have found metol developer to lead to severe inflammation of the fingers and hands, finally resulting in the scaling and pealing off of the cuticle.

ON THE THOROUGH FIXATION OF GELATINO-BROMIDE PLATES.

"'Fix the plate and wash thoroughly,' is the stereotyped instruction-book phrase. A better version would be: 'fix thoroughly and wash.'"

The above is a quotation from a communication by Mr. S. Herbert Fry to the "British Journal Photographic Almanac" for the present year. I most decidedly agree with Mr. Fry in this matter. I don't mean to say that I think washing should not be thorough; it should, of course; but if one of the two operations is to be done perfunctorily, there is much less risk of the destruction of a negative imperfectly washed, than of one imperfectly fixed.

The necessity for perfect fixation has been emphasized a thousand times. It has never been more strongly insisted on than it was by Mr. Joseph W. Swan, when he first began issuing, commercially, gelatino-bromide dry-plates. He insisted on the necessity for using two fixing baths, one a freshly mixed one, if perfect permanency were looked for, and stated that the longer the plate remained in the fresh bath the better. We have also had it explained to us hundreds of times, that the effect of the hyposulphite solution is first to produce a hyposulphite of silver that is insoluble in water, then to decompose this into a hyposulphite of silver soluble in water, and it has been pointed out that it is quite necessary to allow time for this second decomposition to complete itself. Taking

this into consideration Mr. W. E. Debenham, assuming, I presume, that the second decomposition is likely to take as long as the first, has stated that the plate should lie in the fixing bath twice as long as is necessary to remove the visible bromide of silver, as seen from the back of the plate. I think Mr. Debenham is right. Indeed, I think the time he mentions is the very least that ought to be allowed.

I do not intend to add any word to the already strong arguments in favor of thorough fixing, other than to give my own experience in the matter, or rather to tell what I have seen in recently overhauling a large number of negatives, mostly made within the last six years, but some more than six years ago.

In the first place, let me state that by far the greater number of cases where negatives have become useless, insufficient fixation has been the cause. The effect resulting from insufficient fixation is the appearance of a deep yellow discoloration in the most transparent parts of a negative. The cause of this is that the hyposulphite of silver that has not been dissolved away is sensitive to light and is also subject to reduction even in the dark, at any rate in a damp atmosphere.

The non-actinic color of this deposit is such that the printing qualities of a negative are entirely destroyed, apart from the fact that the discoloration is always more or less local. In fact it shows itself most strongly, or only, at those parts of the negative that were the last to show white from the back in the fixing bath, and with all the present evenness of plate coating, I imagine no one ever knew a plate to fix so evenly that the whiteness seen from the back disappeared from all parts at the same instant.

It would appear that there is no solvent for this deposit that will not dissolve the image also—at any rate I have not heard of one, and do not think that one is known. I wish some of our chemists would turn their attention to this matter. They would confer a great boon on photographers could they discover any substance that would dissolve the yellow deposit without attacking either the actual image or the gelatine of the film.

It is particularly in the case of unevenly coated plates that the effect of insufficient fixing is most distinctly seen. In the coating of plates by machinery at the present day, a marvelously even film is got, but even now there is by no means absolute uniformity throughout a plate. Indeed, it is impossible that there should be unless absolutely flat glass were used. In hand-coated plates the unevenness was often very conspicuous, a part of the plate refusing to fix for so long a time that all patience was lost, and one was sorely tempted to take it from the fixing bath as soon as all appearance of whiteness had disappeared from this spot. The result, it need scarcely be said, was that the negative soon discolored where the spot had been.

Of course I see certain good qualities in plates made by myself not to be found in any other plates. I don't consider it necessary to accuse myself of particular conceit on this account, for I am quite sure that every one who has made any number of plates has the same impression—delusion, let us say. I have to admit, however, that a much greater percentage of negatives made on my own plates have become locally discolored from imperfect fixation than of negatives made on plates commercially prepared. There are two reasons for this. In the first place, I have generally given thicker coatings than those of any commercial plates that I know of; and, in the second, I naturally have not the skill in coating that one has whose work is coating every day and all day long.

Destruction of Negatives from Imperfect Washing.—I have to admit to having imperfectly washed many negatives, yet I have lost very few on that account. The effect of insufficient washing is nearly always visible. If the washings have been very insufficient, parts of the plate refuse to dry, having an appearance of "sweating." If the washings have been less imperfect, the parts insufficiently washed show a sort of faint ground-glass-like appearance on the surface of the film when viewed at a certain angle. A finger drawn across this part of the plate will show a distinct streak. In either case the plate can be washed again. The greatest danger of loss is that the plate may frill in the second washing. I do not know why it is, but it is the case that plates that will never frill when treated in the usual way will, even if they have been treated with an alum bath before fixing, sometimes frill if washed a second time, because the first washing was insufficient.

If there is any doubt as to the efficiency of washing, plates should always be examined before they are varnished for the appearances described. An insufficiently washed plate once varnished is almost sure to spoil. The heating before the application of the varnish, and the alcohol of the varnish, cause the disappearance of the water that is in the film, or on it, that causes the appearances mentioned; but the hydroscopic nature of the hyposulphite of soda draws water through the film of varnish the first time there is a spell of damp weather, and the negative is ruined.

W. K. Burton.

AUTOMATIC ECLIPSE PHOTOGRAPHY.

By Mabel Loomis Todd.

[Edited by Prof. David P. Todd, of Amherst College.]

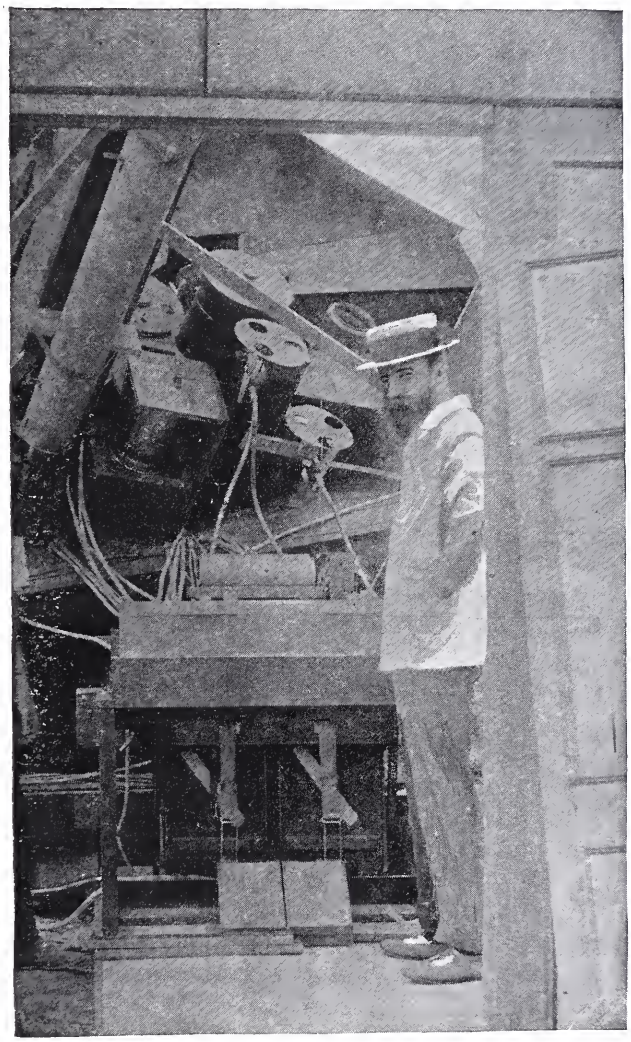
(*Continued from page* 563 *and concluded.*)

In still another form, the plates were double-hinged together into an endless chain, by means of pairs of flexible tapes, cemented on the ends. These ran round square axles like a belt, and the motion of the axles was effected in the way previously indicated for the plate-barrels.

In an extreme case, a combination of the barrel and ratchet movement was devised by Professor Bigelow, to test the utmost rapidity of working. It is rather intricate for description here, but a hundred exposures during the 190 seconds of totality were found to be well within its capacity.

Although the photographic plates were to be used only during the total eclipse, when it would be quite dark, it was still necessary to provide for their protection from the impress of diffused light, which might ruin the sensitive surfaces for recording the delicate filaments of the corona.

But there was not time to make a dark box to cover the plates for every instrument, even if there had been room on the great polar axis to accommodate them all. This obstacle was overcome by erecting a large Ducker portable house above the entire collection of apparatus, and dividing it in two compartments, as shown on the preceding page,—the light half toward the Sun, with a removable roof, while the other part formed an extensive dark-room, into which the telescopes all projected. Flexible diaphragms of opaque cloth bridged over the spaces between the partition and the cameras, and sufficient slack was left in the cloth so that the clock movement of the axis, with its entire cluster of instruments, should meet with no obstruction.



The Pneumatic Computator and Photographic Instruments in Part.

And, lastly, the pneumatic apparatus. Any one in the least degree familiar with the construction and working of the ordinary automatic organ will have little difficulty in following this description. The automatic valve system is a device, simple as it is ingenious, by which a very small current of air becomes competent to control the movement of another current relatively large. To all intents and purposes, the action of the large current simulates the explosive of a fire-arm, while the action of the small current may be likened to that of a trigger. Then, the number of valves in the system must equal the number of mechanical movements required for shifting photographic plates, opening and closing shutters, and performing the varied sorts of work required in operating eclipse instruments. Also there must be as many triggers, or control currents, as there are valves.

The pneumatic commutator, as built for the expedition by Mr. Gally, looks much like a medium-sized cabinet organ with the case off. Underneath are the two feeders of a large exhaust bellows, operated by ordinary pedals. On top of the exhaust chamber are the chest and valve action, and the ports where the air-tubes leading to all the different *parts* of the photographic apparatus were connected.

Still above, and on the left, is the "tracker," or system of control-apertures. This is a small box with a curved top having in it forty-eight holes, six to the inch, leading each to its appropriate valve in the chest below. When all the apertures of the tracker are closed, and the pedals are operated to exhaust the air strongly from the bellows,

the commutator may then be said to be loaded. But the instant one of the small holes is uncovered, the atmospheric equilibrium is disturbed beneath, and a powerful exhaust current is set in motion through the corresponding valve-port, and through the pipe leading to the little exhaust bellows which has been suitably attached to some piece or other of the photographic apparatus. And this exhaust current continues so long as the pedals are operated and the tiny hole in the tracker remains uncapped.

Now the whole is plain. A ribbon of paper about nine inches wide and of proper length is so perforated that, when it is drawn along over the tracker, its apertures shall come opposite the appropriate holes at the proper times. To make this commutator sheet move with perfect uniformity, it was all wound upon the barrel of an ordinary chronograph, as shown in the engraving on page 577, at the right of the valve-chest. As the chronograph barrel revolves, the control-sheet unwinds, passes out to the left, and up over the tracker, after which it winds upon a small roller turned by a cord attached to a weight just heavy enough to hold the paper at the right tension.



SHOWING THE PERFORATION OF THE CONTROL SHEET (123s TO 130s OF TOTALITY), WITH KEY TO AUTOMATIC MOVEMENTS.

In the centre of this page is a reproduction of a portion of the control-sheet actually employed in operating all the automatic instruments during the total eclipse of December 22, 1889, at the eclipse station in West Africa.

The station selected by Professor Todd for the intallation of this apparatus was established at Cape Ledo, 60 miles from Loanda, and about 250 miles below the mouth of the Congo. When the *Pensacola* came to anchor, there was just a fortnight to the day of the eclipse. The time was short, but faithful workers were not a few. Cape Ledo itself is a bold and rocky headland about 300 feet in height, in parts nearly perpendicular. The entire region is totally uninhabited, although visits from various cannibal chiefs with their staffs from some distance inland varied the monotony of days devoted entirely to work and preparation. Representatives of the Quissama tribe made a number of calls, their firm white teeth filed to sharp points for the better appreciation of their favorite delicacy. The surf, breaking continually upon the beaches near Cape Ledo, was at no time heavy enough entirely to prevent landing, though sudden overturns were occasionally threatened. Fine oysters and game abounded; while palms, the cactus-like euphorbias, and the gigantic baobab gave a tropical effect to the scenery, in general less luxuriant than might have been anticipated from the latitude.

Two days before the eclipse, affairs were rapidly converging toward complete readiness. There was the best of reason for satisfaction with the station meteorologically, for friendly clouds had veiled the morning skies, allowing the work to go on with minimum fatigue, while the afternoons had delighted every one with their transparency.

The forenoon of eclipse-day, too, was thickly overcast; and the early afternoon showed the

most encouraging signs of a clear totality. Breaks in the clouds permitted excellent pictures of the partial eclipse. Shortly before the total phase, darkness covered the station, and soon the ashen shadow of the Moon was seen, sweeping in from the ocean.

The critical moment had arrived, the chronographic governor was started, and the control-paper began to unroll with unerring precision. One aperture after another passed its appointed place at the appointed instant, and hundreds of mechanical movements took place,—exposing-shutters opened and closed, apertures of the lenses varied, Nicol prisms revolved, and fresh plates came promptly into the proper focal planes, to replace those just exposed.

All this went on as if by magic: no hand anywhere touched or offered assistance; but seated before the pneumatic commutator was one man exercising as energetically as if performing the pedal voice of Bach's G-minor fugue.

The programme had been fully carried out, and over three hundred exposures made. Prism, lens, and mirror, mechanical devices and sensitized surfaces had done everything they could, but not a trace of the corona was recorded.

Totality had been cloudy.

THE PHOTOGRAPHY OF THE RETINA.

This interesting question has given rise to many experiments, but the results obtained have been far from satisfactory. Aside from the color of the parts to be photographed, which is anything but actinic, the principal obstacles arose from the difficulty in illuminating the eye and maintaining it sufficiently immobile; again, the reflections from the camera may compromise the results. In a recent issue of the *Bulletin of the French Photographic Society* is an article due to Mr. M. A. Londe, describing a new arrangement by M. Guilloz, Chief of the Physical Laboratory of the Faculty of Nantes, which appears much superior to anything heretofore brought forward.

After briefly summing up the efforts in this direction of Noyes, of New York, in 1862, Rosen-



Photo by C. Reid, Wishaw, Scotland. Gill Engraving Co., N. Y.

CROSSING THE RIVER.

berg in 1864, of Liebrecht, M. Dor, Cohn and others, and pointing out the practical difficulties of the operation and the causes of the more or less successful results obtained, Mr. Londe proceeds to describe the apparatus devised by M. Guilloz. The latter prefers to photograph the reversed image, which he obtains very simply by placing the source of illumination at a distance of about 12 to 20 inches and making use of an ordinary convex lens. The observer placed immediately behind the source of illumination, and protected by an opaque screen, forms the image with the lens, examining it with one eye.

If then the eye of the observer be replaced by the photographic objective, an uninverted image of the back of the eye will be obtained.

The subject is placed before a support carrying the lens, his eye is illuminated by means of a special lamp, and the image is received by the photographic apparatus modified in a very ingenious manner.



GOING TO MARKET.

The lens employed is mounted in such a manner as to be adjustable in every direction. The lamp is an ordinary argand gas-burner, whose glass chimney is replaced by one in sheet metal, carrying two tubes placed laterally at the level of the flame. The first, which is directed toward the subject, carries a lens whose focus lies in the centre of the flame. A pencil of parallel rays is thus obtained for the proper illumination of the eye for examination and focusing.

Between the flame and this lens is placed a disc of plain glass for the purpose of protecting the lens from the products of the combustion of the magnesium from which is obtained, at the proper moment, the necessary illumination for the impression of the sensitive plate. The magnesium light giving a brilliant illumination in a very short space of time, renders unnecessary the absolute fixity of the eye, and thus overcomes one of the principal difficulties.



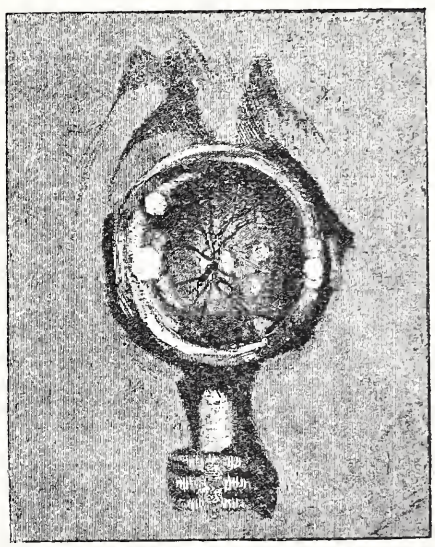
THE WRECK.

The second tube contains an arrangement called, by M. Guilloz, a magnesium pistol, the purpose of which is, at the desired moment, to project the

flash mixture into the flame. A square stem passes through the closed end of the tube. In the end of this stem toward the flame is a small cavity for the purpose of containing the flash powder. A spiral spring surrounds the rod and when the latter is drawn back by means of the post which projects through the bottom of the tube the spring is compressed, and when drawn fully back it is automatically caught, and the pistol is set. When in this position the small cavity destined to receive the charge is directly under an opening provided with a sliding cover, which permits the charge to be introduced. When the pistol is released, which is done by means of a pneumatic arrangement operated by a rubber bulb, which is compressed automatically at the moment the operator uncovers the sensitive plate, the charge is projected into the flame producing the flash. The flash mixture is composed of two (2) parts of magnesium powder and one (1) part of chloride of potassium. The quantity necessary for each operation does not exceed 3 to 4½ grains. The duration of the combustion is a fraction of a second, in this case of the greatest advantage, as the eye has not time to move. After each discharge, it is necessary to clean the plain glass which forms a condenser, from the magnesia which covers it.

The camera is modified as follows: On the back is placed an extension in which is a mirror placed at an angle of 45 degs. This mirror is hinged at its upper edge and it can be swung up against the upper side of the extension. It will thus uncover the sensitive plate which occupies its usual position in this extension. For focusing the extension is provided at the top with a horizontal ground glass on which the image is reflected by the mirror when it is at 45 degs. In this position the mirror bisects exactly the angle formed by the sensitive plate and the ground glass; when the image is sharp on the ground glass, it will be sharp also on the dry-plate. The mirror is operated by two handles fixed at the extremities of its axis of rotation, and it is one of these handles which releases the pistol. The plate is exposed and the mirror drops back and covers it once more. The intensity of the light from the gas is not very great, still as a matter of precaution as soon as the discharge has taken place the plate is protected. The focusing is a delicate operation, and M. Guilloz proposes the use of a glass very finely ground or even oiled, or again an unground glass on the underside, on which are some rulings made with a diamond. In this case the image is examined with a lens adjusted so as to give the lines made with the diamond the greatest sharpness. Rapid plates and energetic developers are used as a matter of course, and the plates are developed as any ordinary instantaneous exposure would be.

The operation should always be made after the dilation of the pupil, but as this condition need not necessarily last long, it is preferable to employ substances whose action is rapid and transient. M. Guilloz has finally settled upon a mixture by hydrochlorate of cocaine, one-thirtieth, and hydrochlorate of homatropine, one-one-hundredth; its action is rapid and of short duration, and hence the inconvenience is not longer than necessary. The operation is as follows: The subject is supported by the head rest of Javel's opthalmometer as if it were a question of measuring the astigmatism of the cornea. The eye is illuminated and the lens is brought in front of it, in such a position that the point of focus falls very nearly in the



plane of the pupil. The lamp, and the lens if necessary, are then shifted until the eye of the observer placed behind the source of illumination sees the reversed image. The subject directs his eye exactly as for an examination by the ophthalmoscope. The proper position obtained, the camera is placed so that the objective occupies the position previously occupied by the eye of the observer, the camera is focused on the ground glass, and when the image is satisfactory the mirror is raised, the discharge takes place and the mirror is allowed to drop back. With this apparatus a rapidity of execution is assumed which is indispensable and an unreversed picture of the retina is obtained.

We give a *fac-simile* of one of the photographs of M. Guilloz, representing a normal eye. These results show certainly an important advance over

anything done up to the present time. Nevertheless, it is evident that reflections are not completely eliminated—beside those from the cornea there are others which are due to the reflection of the pencil of light both on the lenses and on the cornea itself. These reflections are shown by white spots circular in form, and it is not possible to confound them with a pathological spot.

By displacing slightly the lens they can eventually be thrown toward the periphery of the image, the centre being completely exempt from them. M. Guilloz, however, has submitted to us only his first results, and he seems convinced that by the method indicated he will be able with proper arrangements radically to eliminate the reflections.

A last consideration, that of the action of the magnesium light on the eye, normal and diseased. We have space only for the conclusion from the proofs brought forward by M. Guilloz, viz.: "However it may be, the conclusion from these researches is that the photography of the retina may be effected without danger to the subject, which will allow the method we believe to enter into current practice."

TELE-PHOTOGRAPHY.

[World's Congress of Photography.]

This newly coined combination of words represents a new attainment in photography, which, under certain conditions, is exceeding valuable. Although it has for the past year been brought prominently forward by the photographic journals, it still leaves in my opinion room for additional facts and explanations which practical experience with the subject has brought to my notice. Furthermore, there have also appeared descriptions of new devices with claims made for them which either show a lack of knowledge of the subject, or are misstatements, but appear so plausible as to be misleading to those not acquainted with the principle involved.

In my opinion Mr. Dallmeyer should have credit for proposing the new word as well as for the introduction of the new lenses. In making this statement I am aware that Dr. Miethe of Germany, almost simultaneously with Mr. Dallmeyer, published a description of a new lens which he had constructed, as well as the fact that Mr. J. Traill Taylor has applied a combination of lenses similar to the Galilean-Telescope to terrestrial photography and published his results many years previous. Although it is known that the tele-photo lens is not new, either in principle or in its application, Mr. Dallmeyer has given a scientific description of the principle and has offered lenses to the photographic community which have practical utility.

As is known, Mr. Dallmeyer's definition of the purposes of the tele-photo lens is in effect to take photographs of distant objects of greater size and detail that can be seen with the naked eye. I believe that it should and will be modified to require only, in a tele-photo lens, a larger image than a photographic objective, which is used alone, will give.

Mr. Steinheil calls his tele-photographic lenses "distance objectives consisting of a photographic in connection with an enlarging system." This in effect is what it is.

As is known, the enlarging lens is a negative lens, which, as the rays from the photographic objective pass through it, makes them diverging, thus increasing its virtual focal length, not to such an extent, however, as to prevent them from forming an image on the ground glass; in fact, the result is the same as in a telescope and underlies the identical principle, the negative lens corresponding to the Barlow lens in the ordinary refracting telescope, or to the eye lens in the Galilean telescope, the difference in the latter combination, however, being the following: The combination forming the Galilean telescope as in opera or field glass if the distance between the positive and negative combination is less than the difference of their focal length, while in the tele-photo lens it is more. I consider it outside of the province of this paper to give a detailed description of construction of the tele-photo lens, as this has been fully accomplished by other writers on the subject. My object is rather to show the differences of construction in the various meritorious systems now offered, and to point out particularly that while the new lenses possess valuable and for some work indispensable qualities, there are a number of serious difficulties in putting them to actual use. While some of these objections have been incidentally mentioned by some writers, the impression prevails that tele-photo lenses can be used with about as much ease as the ordinary objective, while such is not at all the case. My object is not to discourage the use of these lenses, on the contrary, rather to lead to a more intelligent application of them and to prevent the discouragement which is likely to attend their first use.

The extent of the magnifying power obtained depends upon three conditions, if we will consider the positive and negative elements forming the tele-photo lenses separately. Taking the nega-

tive lens as a constant, an increase in the length of focus of positive combination or photographic objective proper gives an increase in power. The positive combination remaining constant a decrease in the focal length of the negative combination increases the power. Both positive and negative combinations remaining constant, a decrease in their separation increases the power.

The amount of satisfactory magnification which can be obtained by this means varies from three to ten times. To increase less than three times would have little value and to increase more than ten times, except under extraordinary circumstances, is impracticable, as will be shown later on.

Increase in the amount of amplification means a decrease in the amount of speed, and is in direct proportion to it. Thus, if the size of an image is increased five times, the speed is reduced just five times, using the same aperture in both cases; thus, taking a lens of 8″ equivalent focus with an aperture of 1′, the speed would be represented by $f/8$. In the combination the speed would be reduced to $f/40$.

On the other hand, an increase in the size of image means that the focus of combinations is equivalent to five times the focus of the objective only. Thus in a photographic objective of 8 inch focus an increase of five times by means of the negative lens, the image corresponds to that given by a lens of 40″ focus. There exists, however, this decided advantage in favor of the combination, that while a lens of 40″ focus would require an extension to this extent, the tele-photo lens would require, depending considerably upon the amplifying power of the negative lens, about one-half, or 20″. It is evident that herein lies one of the greatest advantages of the tele-photo lenses; that such apparatus as one may posses covers a wider range of usefulness than would otherwise be the case. This may be further enhanced as I shall point out.

To give an idea of focal distance, that is from back of combination to ground glass and circle of light covered, I append a table of a 4 x 5 lens of $6\frac{1}{4}$″ equivalent focus in combination with a suitable negative aystem.

Power.	Focal Distance.	Circle of Light.
3	6½ inches	6
7	10 "	8½
5	13½ "	11½
6	16½ "	15½
7	20 "	19½
8	23½ "	23½
7	27 "	
10	30½ "	

From the fact that the primary image is enlarged by the negative lens it is apparent that the photographic objective should give as nearly a faultless image as possible. A negative lens should not only be spherically and chromatically correct, but should be free from any inherent faults, such as striae, poor centreing or faulty completion of the surfaces. This is true as well as for the photographic system, for it is evident that the greater the degree of its definition, the greater will be the amount of detail in the enlarged image. Any fault in this direction will be increased in proportion to the amount of magnification. This is also true of the speed of the lens. The lens should be used with a large opening so as to require as short an exposure as possible; in fact, instantaneous exposure with a medium magnification is the highest attainment of optical skill, but in actual use will be difficult to reach because of the obstacles in construction on the one hand, and outside conditions on the other.

The tele-photo lens would have but a limited range of usefulness if we were compelled to depend upon lenses of extreme rapidity, as its use would be confined to a comparatively small number of persons whose means would allow the considerable outlay. By pointing out that lenses of ordinary rapidity are amply sufficient for all purposes except those showing objects in motion, I believe that a more extended use can be effected. Mr. Dallmeyer originally made up a complete combination system of a very quick portrait lens, and later, I believe, arranged to supply other of his rapid lenses with the negative system. The tele-photo lens of Dr. Miethe consists of a single system positive and negative lens. That of Mr. Steinheil consists of the adjustable barrel containing a negative system so arranged that specially designated lenses of his production can be attached, particularly specifying that lenses of not less than $f/7$ must be used. All of these arrangements are provided with a means of adjustment either by sliding tube or rack and pinion for varying distances between the positive and negative systems so as to obtain a variation in the magnifying power.

Having given the subject considerable thought, I have come to the conclusion that the above-mentioned methods are just one step short of permitting every owner of a camera and good lens the privilege of obtaining a tele-photo lens and enjoying the results obtained by it at a comparatively small cost. I therefore propose to make a series of tubes adjustable by rack and pinion, provided at the posterior and with a negative system, and at the front so arranged as to receive an adapter for any photographic lens which its owner may desire to use for this purpose. The tele-photo attach-

ment will be arranged by a series to suit the prevailing lenses from 3¼ x 4¼ to any size plate required. The equivalent focus of the lens being known or having been determined, it will be an easy matter to provide the tube with a scale which will indicate the exact magnifying power.

The difficulties which arise in the satisfactory use of tele-photo lenses are several. As has often been noticed in the telescope, it will be found that atmospheric conditions affect the successful practice in tele-photography. First of all, the atmosphere must be clear; it must be possible to see the object which is intended to photograph plainly with the eye. If this can be done the object can be focused on the ground glass, when another obstruction may show itself in the instability of the air, which becomes apparent by the flickering of the image. This is most common on a warm summer day, or in cities from the heated air arising from chimneys. It will be impossible to obtain sharp detail under such conditions.

The contrasts in light and shade will be much less marked, and for this reason it becomes a matter of good judgment to focus correctly. During the time of exposure the camera should be absolutely rigid; the slightest vibration, such as would result from too energetically uncapping the lens or from a gust of wind, would be fatal to sharp detail. A good means to obtain rigidity is to set up the camera if possible in a spot protected from wind, and to rest the front of the bed on a secondary tripod. The camera should never be directed through a window from a room on account of the vibration which may occur, and the current of air which may be caused by the difference of the temperature in the room and outside.

These difficulties all increase with the increased magnifying power, but for all that, I do not think they interfere with the enjoyment of practicing tele-photography if proper care and good judgment are used.

Edward Bausch.

NOTE.—We regret that circumstances over which we have no control prevent our announcing the result of our first competition in this number. We shall endeavor, however, to give the names of the prize winners in our next issue.

BEFORE THE CAMERA.

"YOU want me to photograph those twelve men? Why, there's absolutely no expression on their faces."

"That's all right. Don't you know that's the jury in the celebrated murder case now on!"

ON THE MAKING OF STEREOSCOPIC PHOTOGRAPHS.

[Mittheilungen.]

TO MAKE good stereoscopic pictures it is not only necessary to have the two single pictures identical, but the stereoscopic effect depends much upon their correct position toward each other, and it is certainly interesting enough to consider certain and simple methods of accomplishing this.

1. The distance between the objectives from axis to axis should not exceed 8 c.m. (nearly 3½ inches). With such distance the stereoscopic effect in the foreground is natural, and far-off objects also stand out in sufficient relief.

2. The individual single pictures of a stereogram should not be of greater dimensions than 7.5 c.m. (nearly 3 inches) square.

To determine upon correct position of the single pictures and upon that toward each other, the camera, no matter of what description it may be, must be furnished with a mat or mask of twice 7.5 c.m. x 7.5 c.m., that is of 15 c.m. x 7.5 c.m. (nearly 6 x 3 inches). This mask made of thin japanned tin, or stiff cardboard, must be accurately cut in right angles and be placed immediately before the ground glass. Through the mask only so much is seen of the picture on the ground glass as is necessary to cover the space prescribed for a stereogram, and by these means it is quite easy to introduce into the picture only as much of an object, or part of it, as is desirable.

The parallel lines and right angles of the mask facilitate a correct reversal of the two individual pictures.

It is most advantageous and the simplest method, too, to cut the negative at the dividing line. It is best to cut off first the outer margins on the shorter ends of the plate, and then divide the plate in the centre, the dividing line having been marked by the septum of the camera. The two pictures are then in reversed position transferred to clean glass, and fastened with a little beeswax.

The pictures now placed alongside of each other must occupy the same space as they did before being separated; the paper mask used for the making of the negative serves here as a guide.

Everything being correct the negatives are finally fastened upon the glass support and are ready for printing.

E. Suter.

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

[British Photographic Convention.]

(*Continued from page* 570.)

Where numbers of strips exposed are stated, it is to be understood that No. 1 is the strip that was first exposed, and that had the shortest exposure. The "first four strips," or Nos. 1, 2, 3 and 4, means, for example, these strips that received each quarter-second exposure, at distances of 10 feet, 7 feet, 5 feet and 3 feet 6 inches from the lamp.

I wish to state here that nearly all development was done by my assistant, Mr. K. Arito, from written instructions given to him by me without comment. I had distinct reasons for this. In the first place, Mr. Arito is a very careful operator, much more careful than I am—though

that may not be saying much. In the second place, although of course he knew the general drift of the experiments, he knew nothing of what had given rise to them, or of the exact lines that I was working on. He was, therefore, much less liable to be carried into the inaccuracies that I distinctly state most of us are liable to be carried into unconsciously, or nearly so, when we wish experimentally to prove a particutar fact. Still farther, it enabled me to make sure that the experiments could be repeated by any intelligent operator from briefly written descriptions.

Wherever "normal pyro and soda" developer is referred to, it is to be taken as referring to the developer that the writer has most commonly used for several years past, that is to say, one compounded as follows:—

To each ounce of developer

Pyro (either dry or freshly mixed, without preservative)	2 grains
Sodium carbonate (crystalline)	12 grains
Sulphite of soda	12 grains

This generally works without fogging, but sometimes, not always. When a new batch of plates is bought a sample is tried, and the quantity of bromide needed to prevent any hurtful amount of fog is determined. This never exceeds half a grain to the ounce of bromide of potassium with any plate that would generally be pronounced workable. In all these experiments a quarter of a grain of bromide of potassium was used to each ounce of "standard pyro and soda developer."

I do not wish to re-open the old discussion as to ammonia against other alkalies for development with pyro, but shall merely say that I have, for some time, considered that it was possible to get more out of a short exposure with soda considering not detail only, but the whole of the negative, than with ammonia, and that the present experiments confirm this; that, moreover, I thought till recently that there was greater latitude of exposure with soda than with ammonia, but that these experiments have made me change my mind in this respect, as I have been able to get greater latitude with ammonia than with any other alkali that I have tried.

Here it may be mentioned that a set of experiments incidental to the main experiments was made to discover the relative quantities of bromide of potassium and of bromide of ammonium that were necessary to have the same retarding effect. It was found that, for unit quantity of bromide of ammonium, it was necessary to use that quantity multiplied by between 1¾ and 2 of bromide of potassium. Probably, the exact multiplier lies very nearly halfway between these two—perhaps 1.875. It is near enough for all practical purposes to state that it takes nearly twice as much bromide of potassium to do the same restraining work as any given quantity of bromide of ammonium. It will be seen that the difference is much greater than the different weights of actual bromine contained in the same weights of bromide of ammonium and bromide of potassium.

After a somewhat random set of experiments, conducted to decide on the best lines to work on, more systematic experiments were undertaken. I here give the results of the most interesting of these, not by any means necessarily in the order in which they were carried out.

In all cases the temperature of the developer was kept at as nearly 65 deg. Fahr.

A.

The instructions were:—

"All plates to be developed with a developer containing 2 grains pyro, 12 grains carbonate of soda, and 12 grains sulphite of soda."

"One half of each plate, to be marked "A," to be developed without bromide, till the last figure is distinctly visible, till there is fair density, but development to be stopped before there is distinct fog."

"No. 1. Develop the B half with a developer containing one half-grain of bromide of ammonium per ounce, but stop when strip 2 only is of the same density as strip 1 in the A half."

"No. 3. One grain of bromide of ammonium to the ounce; stop development when No. 4 only is of the same density as No. 1 in the B half."

"No. 6. Eight grains of bromide of ammonium to the ounce; stop development when No. 7 only is of the same density as No. 1 in the A half."

There were intermediate Nos. and also Nos. up to and including No. 8. I select, however, and send you the results of these three only, as being typical.

These were exposed to the large lamp, and the results must be taken as illustrating those of over-exposure. In the case of all other results sent, exposures were to the small lamp.

It will be seen that, in the case of No. 1, the density of the first few strips is, to all intents and purposes, the same in A and B, but that the density rises, after a little, more rapidly in B than in A. Farther than this the opacity reaches a maximum at about the 9th or 10th strip in the case of the half A, whereas it keeps increasing till nearly the end of strip B. At the end the opacity of B is much greater thrn that of A at any part.

It will be seen that the compensation for over-exposure here has been considerable, and that the curves, both of density and of opacity, cross each other, so that the density ratios are changed,

In No. 3 the same thing is to be remarked, and besides that, the first strip or two of B are less opaque than the corresponding strips of A. Here there is greater compensation for over-exposure, and the curves of both density and of opacity cross each other, so that the density ratios are changed.

In No. 6, the same thing is to be noticed, with the complete suppression of the first four, and nearly the complete suppression of the next two strips of the B side. It must, however, be explained here that intensification was resorted to. The reason for this was that, with the large quantity of bromide here mentioned, corresponding, say, to 15 grains of bromide of potassium to the ounce, the image was white by transmitted light. I mean the deposit. It had no printing value at all, and I had not time to discover even if it was of silver. At any rate it blackened, or rather browned, under intensification. It will be seen here that, at any rate, the curves of opacity cross, and that the opacity ratios are very much changed. This is, however, by the use of an intensifier. The next plate, with double the quantity of bromide in the developer, showed the same peculiarities even more strongly than the last. and it was found impossible even to "brown" the image.

W. K. Burton.

(*To be continued.*)

Correspondence.

PHOTO-ENGRAVING.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sir: Please accept my thanks for the copy of "The Grammar of Photo Engraving" which I received some days ago.

Having worked in this line a good part of the time for six or seven years, and therefore having some experience to found a judgment upon, I will say it is the best work of the kind for a beginner that I have seen.

Photo-engraving is something that every ingenious and skilful photographer would do well to turn his hands to, if he has them not already full. Who among them all can resist the temptation to try the making of a half-tone negative, for example? And if he is what he sets himself up for, who would be willing to stop half way, or until he has produced something as good as the best! This any photographer who can make a first class negative from nature can do if he knows how to set himself about it. How to do this is described by the author so clearly and fully that failure seems entirely unnecessary, and this is but a fair *sample* of what the book contains. In fact the subject, the most fascinating collateral branch of photography, is treated throughout exhaustively as only an expert can treat it. I recommend it to all who want the kind of information it professes to give. I think they will find "just what they want to know" in it.

Very truly yours,

W. H. Sherman.

MILWAUKEE, September 29, 1893.

PHOTOGRAPHICAL DEPARTMENT, BELLEVUE HOSPITAL,
NEW YORK CITY, Sept. 18, 1893.

To the Editors of THE PHOTOGRAPHIC TIMES.

Dear Sir: The copy of the "Grammar of Photo-Engraving," which you kindly sent to my address, came safe to hand and has been read from title to end. As a worker in the first process company established in New York, having among its officers Ezra Cornell, founder of Cornell University, and Horace Greeley, founder of the New York *Tribune*, and several other well known and financial leaders, I early acquired an interest in that part of photography which has since become so intimately connected with the printing press and the illustration of all departments of literature and art. I have constantly kept up my interest in such work by a more or less careful study of most of the process methods introduced since those early days; therefore you will readily understand why I have read the new book with more than passing interest.

All through its pages the author gives evidence of a rare ability to impart knowledge in terms which must be easily understood by his readers. He has cracked the nuts and served up the meats with fewer shells than are found in most technical works. The book is worthy of a place among the working volumes of any photographer, printer or chemist who desires to keep up with his profession, or wishes to work in any of the processes which it clearly describes.

I remain very truly your well wisher,

O. S. Mason.

Notes and News.

Read the prize column on the last page.

The success of our hand-camera competitions has surprised not a few.

Mr. W. B. Post the distinguished amateur photographer, has been awarded a medal at the Geneva International Exhibition.

The Congress of the Photographic Society of Great Britain and affiliated societies will take place on the 10th, 11th and 12th of October. Some interesting papers will be read.

Mr. and Mrs. H. Snowden Ward announce Tuesdays in October as their reception days at their residence, 2 Bideford Mansions, Rosebery Avenue, London, E. C.

Mr. E. O. Zimmermann of the well-known firm of Zimmermann Bros. photographic merchants of St. Paul, was in New York last week.

Of the first edition of 20,200 copies of "The American Annual of Photography and Photographic Times Almanac" for 1894, already more than 12,000 copies have been sold.

The second edition of "Amateur Photography," by W. I. Lincoln Adams, announced some time ago, will shortly be ready.

The Grammar of Photo-Engraving has met with an unprecedented sale considering the fact that it is a class book. Nearly one hundred copies have already been sold at retail.

Amidol cartridges seem to be growing in favor, especially among amateurs and traveling photographers. They are very convenient, containing as they do, all the requisites for the developer, and requiring simply to be dissolved in from 7 to 14 ounces of water according to the strength required for the developer.

Our World's Fair picture was received with so much favor by our readers that we shall shortly give them another picture made in the World's Fair grounds, also by the official photographer.

Our picture entitled "Crossing the River," is another example of work by Mr. Reid, the distinguished animal photographer. It has been reproduced by the Gill Engraving Company, whose work we have already been obliged to speak of in high terms. This company execute nearly all the fine half-tone blocks contained in *Scribner's Magazine*.

The American Amateur Photographer has started an annual lantern slide competition. Prizes, silver and bronze medals. There are seven classes, embracing different varieties of subjects. Entries must be received before December 31st next. Entry forms and all particulars can be obtained from the publishers of this magazine, 239 Fifth Avenue, New York, N. Y.

Mr. Geo. G. Rockwood, of 1440 Broadway, makes a specialty of employing photography as a detective or legal witness as he says:

"The photographic lens and sensitive plate can decipher many things invisible to the unaided human eye. Old manuscripts, in which the characters are apparently so near the color of the paper as to be illegible, are often rendered absolutely plain by photography."

Mr. Rockwood has been engaged of late in important legal contests, in which the demonstrations proved to be of great utility as evidence. A suspected erasure and amendment in a signature, invisible to the eye. was rendered unmistakably plain in a photograph three feet long.

Photographic Societies.

The Society of Amateur Photographers of New York.—The members and friends of this society had a most enjoyable outing on the occasion of the first of the International yachts races for the "America's" cup. The steamer Chelsea was chartered and fitted up for the occasion. Notwithstanding the disappointment that was naturally experienced at the result of the race, the fine warm weather and the fun on the ocean made every one contented, and an exceedingly pleasant day was spent.

The little steamer somewhat resembled a miniature man-of-war with the cameras pointing out to sea like a row of gatling guns. Now and then a heavy swell would rock the little vessel from side to side, and a few of the passengers would retire to change their plates, otherwise there were no mishaps.

Nelson Camera Club, Nelson, N. Z.—At the fifth annual meeting the report showed that the finances were in a satisfactory condition and that the membership had increased to 9 honorary and 42 ordinary members.

The Annual Exhibition was held on January 26, 27, 28, 1893, and was in every way a success. Between 500 and 600 pictures were on view, and crowded rooms testified to the public appreciation of these exhibitions. A special interest attaches to this one as it was the first one held in New Zealand in which *three* clubs took part, the Dunedin and the Auckland Societies, both sending fine collections of pictures to represent them. Lantern slide Exhibitions were given each evening, and as usual proved very attractive. Flash light photos of the audience were taken each evening and exhibited on the screen during the following one. The general opinion of press and public seems to be "Not quite so large a show as usual, but better quality." The following officers were re-elected for Session 1893-4.—President, Mr. C. T. Fell; Hon. Secretary, Mr. A. H. Patterson; Committee, Messrs. H. Brusewitz, R Jackson, A. Pitt.

Worcester Camera Club.—The regular monthly meeting of the Worcester Camera Club, held on the 2d inst. was quite fully attended, and considerable interest manifested in the autumn work of the club.

D. W. Carter, Chairman of the Committee on Exhibition, reported that plans were maturing for an exhibition of prints, with lantern slide entertainments for the four last days of November, with special prizes offered for certain classes of work, which promised to be fully up to the exhibitions held heretofore.

The club proposes to increase its membership by the admission of more ladies, hoping thereby to introduce more sociability at its meetings, and also maintain the character and standing of the club. Already about a dozen ladies have expressed a desire to be admitted.

The outlook for the winter promises much instruction and entertainment.

The Editorial Table.

From Mr. H. A. Fuller of Rochester, N. Y., we have received a charming little picture made on Carbutt's orthochromatic plates, with a Scovill view camera, fitted with a Waterbury single view lens.

The Photographic Review for September continues to maintain its interesting and progressive character. It has very properly brought to a close its series of "Lighting Studies," and begins a new series of "Artistic Products of the Camera" by the leading photographers of the country. The first page illustration of the current number is from a negative by Hemperly of Philadelphia.

Our Little Men and Women.—The October issue of this attractive little magazine is as full of timely and striking matter as the magazines designed for the older folk. The delightful little people in "A Little Columbian Granpapa" go to the World's Fair and see Phronsie Pepper and some of their other favorites in the Children's Building, as well as many other interesting things. The instructive bit of Natural History is made as attractive as a fairy tale, and the illustrations are charming. Clearly the days have gone by when dull little "primer" literature was good enough for the children. 10 cents a number; $1.00 a year. D. Lothrop Company, Publishers, Boston.

Dr. Augustus Le Plongeon, of 42 Court Street, Brooklyn, N. Y., the talented author, invites subscriptions to his new and important work entitled "Queen Moó" and the Egyptian Sphinx.

In this work as in his "Sacred Mysteries among the Mayas and the Quiches," the author advances no theory nor private opinion. He leaves the reader to form his own conclusions from the facts placed before him. These are gathered from the Ramayana and other works by ancient Hindoo authors, fresco paintings found at Chichen-Itza, Yucatan, in the memorial hall, dedicated to Prince Coh by his wife, Queen Moó, the Troano M. S,, one of the ancient original Maya books that escaped destruction at the hands of the fanatical Franciscan fairs during the years that followed the Spanish Conquest, Egyptian Records; the names found on tablets, at the base, between the paws of the Egyptian Sphinx; and from the works of Sir Gardner Wilkinson, Lepsius, Osburn and other authorities on the manners and customs of ancient Egypians.

The book will be fully illustrated, and its price will be $2.50.

Record of Photographic Patents.

505,618. Glue for card-board and Photographs. Herman W. Vogel, Charlottenburg, Berlin, Germeny.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

CHRISTMAS PRIZES.

We will send THE PHOTOGRAPHIC TIMES free for one year to the sender of the best Christmas story dealing with photography in any shape or form for our Grand Triple Christmas Number. The story must be original. We will also forward THE PHOTOGRAPHIC TIMES free for one year to the sender of the best photograph suitable for reproduction in this Christmas Number, also for the best article upon a photographic subject.

The editors reserve the right to reproduce in this magazine any article, story or photograph sent, whether such has received the prize or not,

MSS. or photographs sent will not be returned unless stamps be sent for that purpose.

All entries should be marked "Christmas" and sent to the editors of THE PHOTOGRAPHIC TIMES, 423 Broome Street, New York, not later than the 30th of November.

Queries and Answers.

146 MADISON CO., N. Y.—I would like to ask you for a formula for coating glass plates so I could use them the same way they use tintypes. Also please tell me what developer to use.

146 *Answer.*—There is no special preparation required. Clean the glass well by first soaking it in a soda or potash solution, and then in one of nitric acid diluted with two volumes of water, wash well in pure water, dry on rack, and finish by rubbing with silk handkerchief. Sometimes the glass plates are previously prepared with a substratum of diluted albumen.

If it is your desire to make negative pictures you will want a different collodion to that used for ferrotypes. You might use the same developer, but you must evidently expose longer and develop up to printing density. If you only want positives proceed in the same way as with ferrotypes. Positives on glass must be backed up with black varnish, preferably with an asphaltum solution. A piece of black velvet does well.

147 LEXINGTON, TEXAS.—I noticed in THE TIMES recently that you recommend the amidol developer for dry ferrotype plates. Please inform me what brand you think would give the best effect with this developer, and greatly oblige one of your subscribers.

147 *Answer.*—Amidol as a developer for gelatine emulsion ferrotypes has been recommended by Dr. R. Ed. Liesegang, without stating what particular brand of plates are preferred, but we presume he speaks of those manufactured by Dr. Schleussner of Frankford o/M.

The formula of Liesegang is

Amidol	15 grains
Cryst. sodium acetate	2½ drachms
Water	16 ounces

The deposit produced is said to be lustrous and white.

The solution is not permanent.

148 NEW BRUNSWICK.—Will you please inform me as to the method of finding the *focal length* of lenses?

148 *Answer.*—Focus sharply upon an object, more than 300 yards distant from the lens. The distance between the optical centre of the lens and the ground side of the ground glass screen is called the back focus of a lens.

To find the equivalent focus Sir Howard Grubb gives the following method:

"Set the camera before a window upon a flat table, upon which is spread a sheet of white paper. Focus upon some distinct object about 150 or 200 yards away. Draw two upright lines on the focusing screen at 1 inch from the right and left sides respectively. Make the focused image fall on one of these lines, and with a pencil draw a line upon the paper along the side of the camera. Now move the camera so that the image appears on the other line and draw another mark alongside the camera. Take away the camera, and continue these lines with a ruler until they meet to form an angle. Next draw a line across to form a triangle, the line being exactly the same length as the distance between the two lines on the screen. Find the centre of this line, and connect it with the junction of the two angular lines, this will represent the true equivalent focus of the lens.".

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(THE SAME FOR BOTH.)

In 1 ounce Packages,	$0.75
" 2 " " (Hauff's),	1.50
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The object of this book is to present to the constantly increasing number of persons seeking after practical knowledge in the art of process engraving, a comprehensive and thoroughly reliable text-book. The book has been written with a view to instruct the amateur as well as the professional, and the writer has always had in mind the beginner, counting no detail too trivial to be fully described.

It has been written for the most part in the leisure hours, after practical service during the day in a photo-engraving establishment, so that the instruction goes directly from the shop to the pupil. It has been the author's hope, in writing this book, to so carefully describe every branch of work connected with the subject, that the beginner, who knows absolutely nothing about it, may become a practical photo-engraver from a careful reading of the work.

CONTENTS:

CHAPTER I.—Drawings for Photographic Reproduction.—The Materials Required.
CHAPTER II.—Chemicals Used in Photo-Engraving.
CHAPTER III.—Apparatus and the Work-Shop.
CHAPTER IV.—Photographic Processes as Employed in Photo-Engravings.—Preparation of the Chemicals.
CHAPTER V.—Causes of Failure—Remedies.
CHAPTER VI.—The Half-Tone Process—Screen Plates.
CHAPTER VII.—Zinc Etching.—Preparation of Chemicals Used in Zinc Etching.
CHAPTER VIII.—Etching in Half-Tone.
CHAPTER IX.—Blocking and Finishing.—Tools and Materials.
CHAPTER X.—Swelled Gelatine Process of Photo-Engraving.
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Associate Editors:
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WALTER E. WOODBURY.

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WANTED.—Copy of THE PHOTOGRAPHIC TIMES for February 17, 1893; will pay 15 cents. Address
W. E. W., THE PHOTOGRAPHIC TIMES,
423 Broome Street, New York.

P. A. OF A.—The Chicago Exhibits of Stein, of Milwaukee, and Rösch, of St. Louis, are on exhibit at THE SCOVILL & ADAMS CO., 423 Broome St., New York.

FOR SALE.—One Stendicke Universal Lens, fitted with Prosch Duplex Shutter, with pneumatic bulb and tube; eight-inch back focus. Cost $39, will sell for $25. Address "STENDICKE," care THE PHOTOGRAPHIC TIMES Office.

THE PRINTING-OUT PAPER used by Rösch of Chicago, in making his display which attracted so much attention and gained a premium at Chicago, can be procured from THE SCOVILL & ADAMS CO., 423 Broome St., New York. Received fresh daily.

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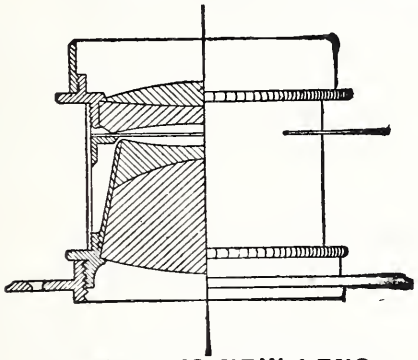
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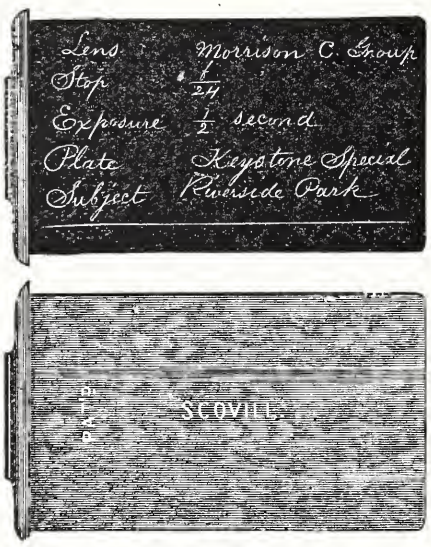
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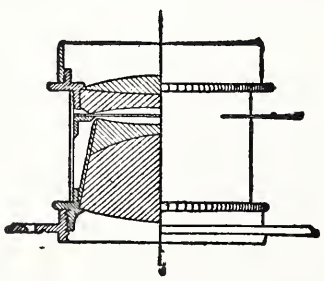
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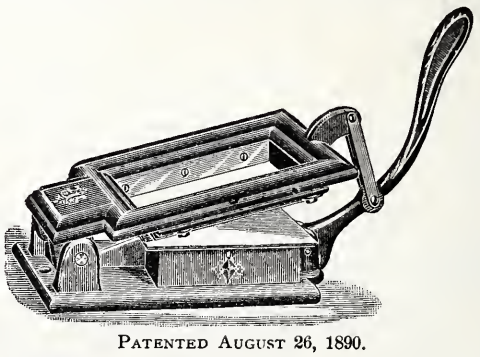
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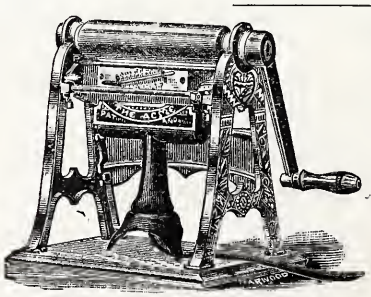


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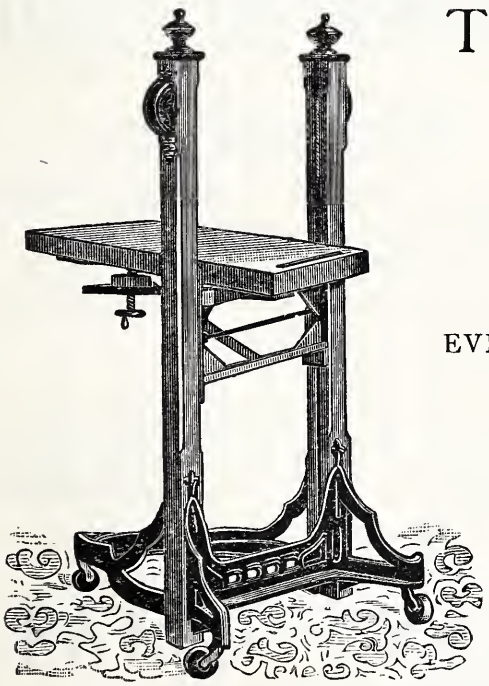
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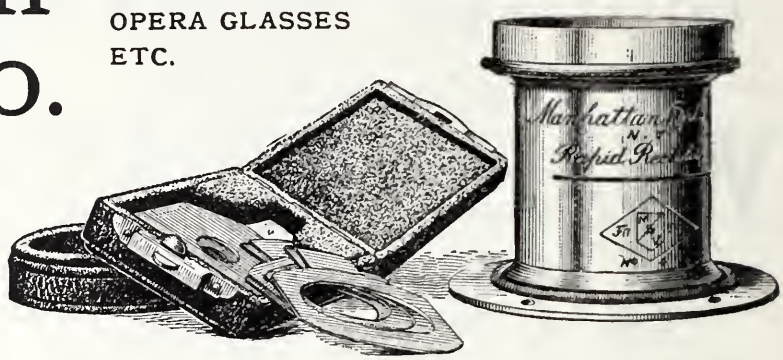
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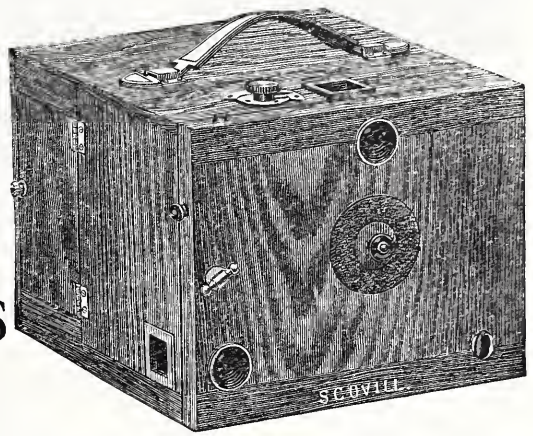
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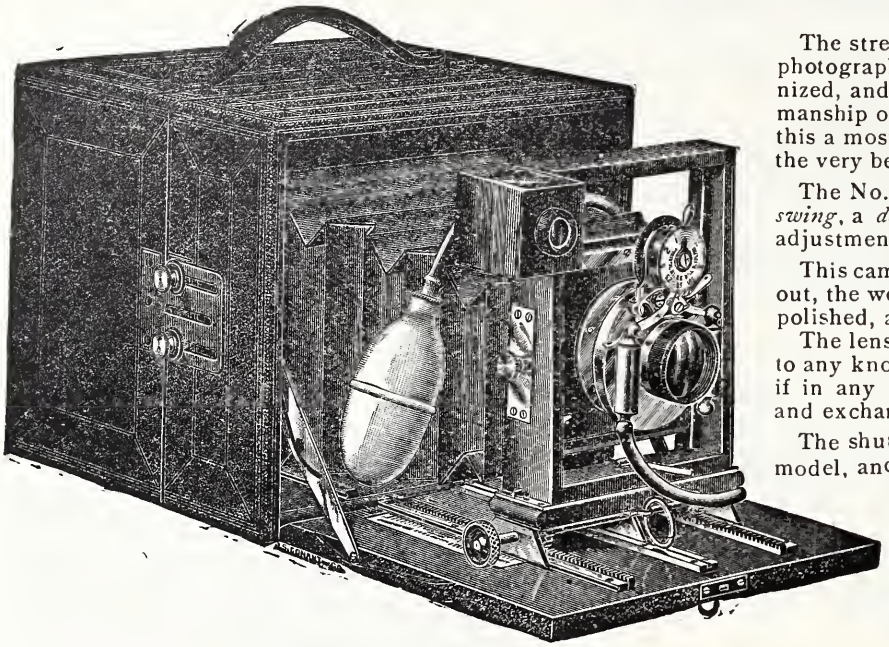
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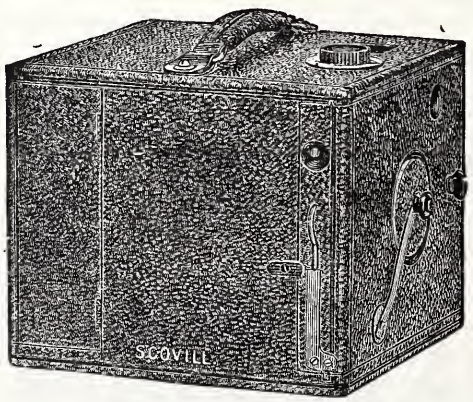
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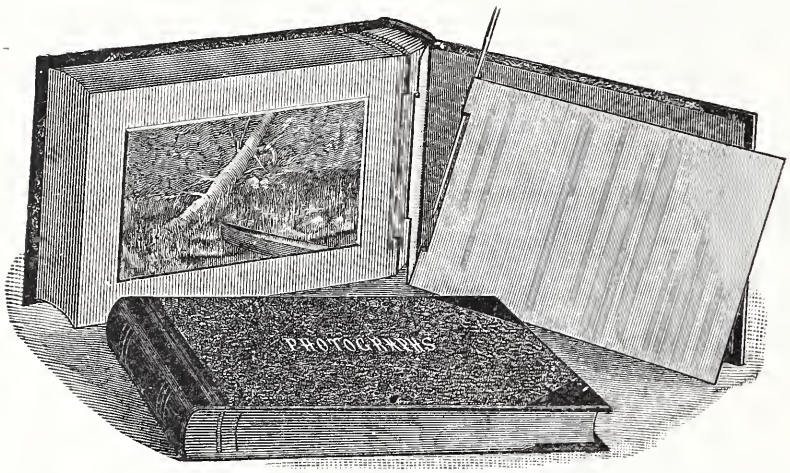
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READ WHAT MR. KILBURN SAYS:

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What Better Testimonial do you want than this?

Here is Something New, Something Good, Also!

HELMOLD'S HARDENING MIXTURE,

For NEGATIVES, has been characterized as "A GREAT FIND."

NEGATIVES treated with this Mixture are absolutely impervious to the action of heat or water.

Photographers using it are enabled to dry their negatives quickly by heat and to discard varnish.

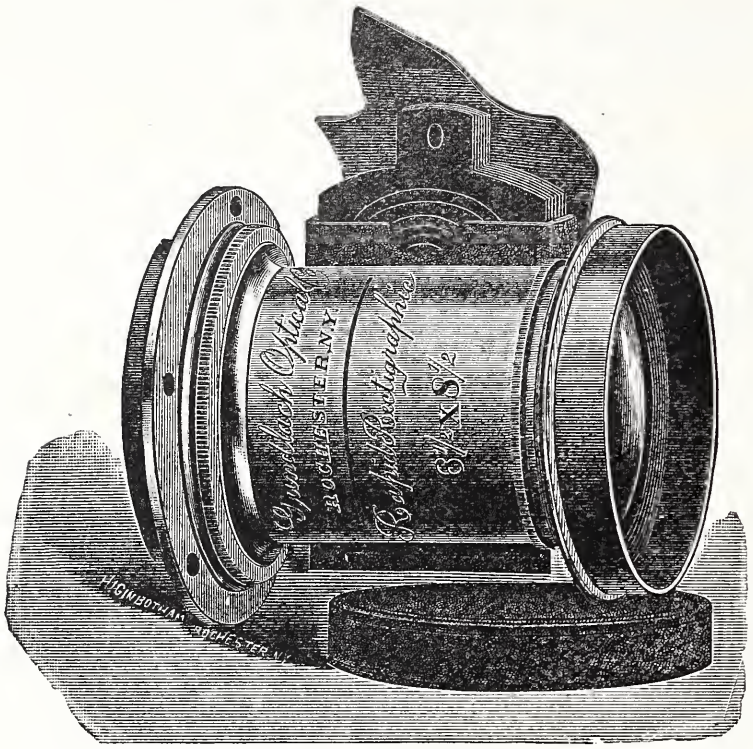
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The Mixture is dissolved in water and the plates are immersed in it for ten or fifteen minutes, after being well fixed. When washed again they are dried by heat, and are at once ready for printing. It is also excellent for hardening **Aristotype Prints,** and rendering them impervious to the action of heat or water.

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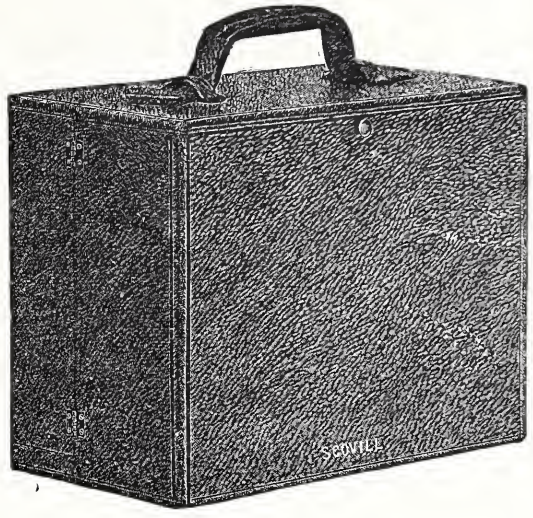
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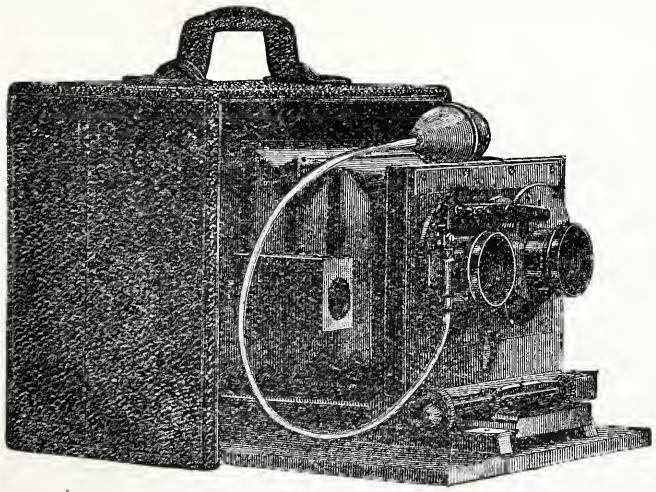
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front, . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

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A. M. Collins
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would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

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MOTTO: "AND THERE WAS LIGHT."

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The LOCAL or WINTER CLASS will open on November 18th and close on May 18th, 1894.

The Skylight Room and Laboratory used by the Class are on the seventh floor of No. 423 Broome Street, New York. (Take elevator.) Separate classes for ladies.

Cost of course of ten lessons, including entrance fee, text book and materials used in demonstration, - - - - - - - - - - - $7.50
Special single lessons, per hour, each, - - 1.00
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A Letter Which Explains Itself.

World's Columbian Exhibition,
Department of Photography.

Chicago, July 21 1893

Messrs. Scovill & Adams Co
Newyork N.Y.

Gentlemen I have used the American Optical Co's apparatus exclusively in my work as Chief of the Department of Photography at the Columbian Exposition.

All goods for this work were purchased from the best workshops of the world with a view of obtaining the best possible results during this tour, and of obtaining the largest possible latitude after the exposure is over. Your apparatus is in every respect the best made

Very sincerely yours
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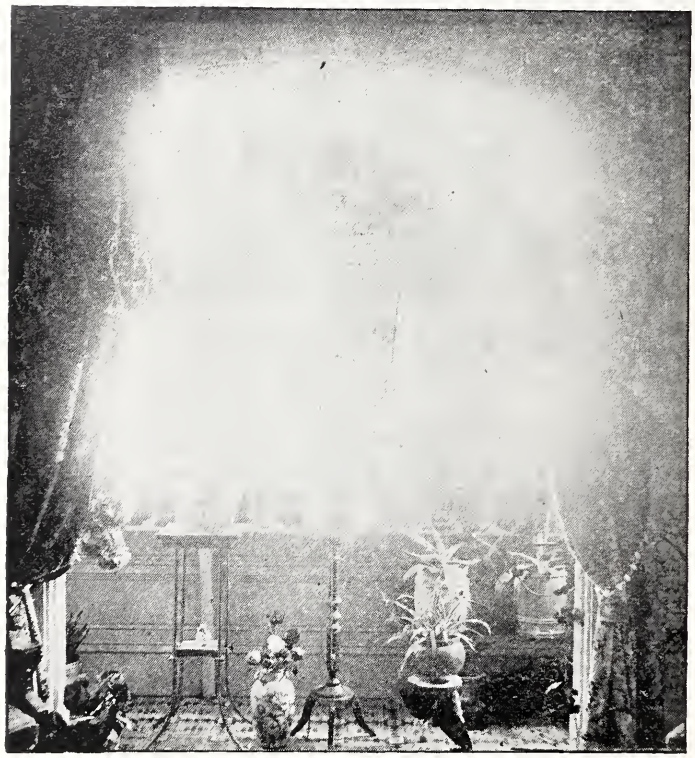
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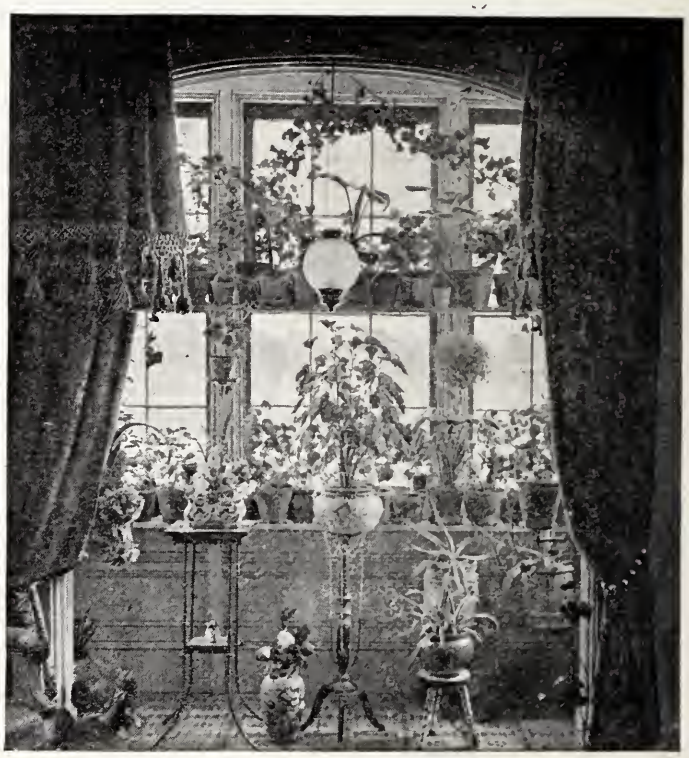
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S. W. Perry & Co.,
Photographic Outfits and Supplies,
Berea, Ohio.

Berea, Ohio, July 11, 1893.

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A REVERIE.

THE PHOTOGRAPHIC TIMES.

Vol. XXIII. OCTOBER 27, 1893. No. 632.

A REVERIE.

The illustration which forms the frontispiece of this issue is a study by Mrs. N. Bray Bartlett. The easy and graceful posing go toward making a very pleasing picture. The lighting effect is also good.

AMIDOL OR DIAMIDOPHENOL.

The popularity of this new developing agent, with both amateur and professional photographers, is now so great that there can be little doubt that it has come to stay with us.

It is undoubtedly an excellent developer and its consumption increases as the method of working with it becomes better understood by practitioners.

Probably one of the reasons that amidol when first tried, so often gives little, if any satisfaction is due to its enormous energy, for, with a plate exposed correctly for pyro soda or potash, for hydroquinone or ferrous oxalate, it will be found that amidol requires but one-third of the exposure.

If a plate be exposed correctly for pyro or for any of the other developers ordinarily used, the image will, when immersed in the amidol solution, flash up almost instantaneously as with a collodion plate developed with acid ferrous sulphate, and if the exposure has been approximately correct, or but a trifle over, development will proceed quietly until a negative of sufficient printing density becomes the result, even if it takes a longer time than usual.

This sudden flashing up of a feeble image was at first very injurious to the reputation of amidol. The annoying effect has no consequence however, a little patience and a few minutes' longer time being the only expense.

One of the greatest advantages of amidol lies in the beautiful clearness of negatives developed with its solution, and the grayish black tone, so much admired of the silver deposit.

In perusing the many different reports on amidol, printed in our daily journals, quite contradictory statements are sometimes encountered. It was first stated to be a decidedly acid developer, and that by merely adding to it a solution of neutral sodium sulphite, a high activity was obtained. Pure amidol has but a very slight developing action. Sodium sulphite is, however, not always of the desired purity, but contaminated with other salts to such a degree that it contains but 35 or 40 per cent. of pure sulphite. The foreign salts, which as a rule are believed to be mainly carbonates, must necessarily, when in solution, neutralize the acidity of the amidol, and form new and other combinations. Still developing proceeds even then.

These supposed carbonates were at first neutralized with sulphurous acid, but without any signal effect. To add more neutral sulphite to the solution is said to accelerate its developing form, but were we to presume that the carbonate of soda added with the sulphite in the first instance had neutralized the amidol, the addition of more sulphite would render it alkaline again, provided it contained as much carbonate as before stated.

Bromides restrain the action of amidol, but to do so in the generally accepted sense of the word, much of it must be added to the developer. In small quantities it prevents fog, but does not show any restraining action at all. According to Eder, acids, like sulphuric or citric, and acid bisulphite of sodium, restrain the development with amidol. We have found the action of these substances very much like that of an alkaline bromide upon hydrochinone. Little has no effect whatever; increase the quantity and it stops the developing process altogether.

Many of the aromatic carbon compounds are reducing agents *per se*. Silver haloids exposed to light or even when not exposed are reduced by some

of them to metallic silver. But there are others which absolutely require the haloid to be exposed. To this first class belong most of our developers of this series, and paramidophenol is one of its most striking examples. No matter how alkaline the solution, the developer brings forth negatives of absolute clearness.

It is different with amidol when alkali is present, in which case the non-exposed part of a plate undergoes reduction and the whole plate becomes foggy.

Dr. Schnauss, Dr. Stolze and Chas. Scolik are seemingly of different opinions, and recommend as an accelerator for under-exposed plates a few drops of a dilute solution of a weak alkali or alkaline salt, like borax or bicarbonate of sodium. Borax changes the color of the solution to an intense red, and with bicarbonate so many bubbles of carbonic acid are formed upon the plate as with hydroxylamine, that it is practically useless. Nevertheless, the addition of the weak alkali promotes the developing process.

The quantity of foreign substance in sodium sulphite, generally believed to be solely carbonate of sodium, has been reduced to 16 or 18 per cent., but still with so much alkali the acid amidol would become neutral, and alkali would still be in excess. Mercier assumes these foreign substances to be mainly hyposulphite of sodium with but a small quantity of carbonate. We know hypo in very small quantities to be an accelerator for ferrous oxalate and eikonogen, and the question arises is it not possibly so with amidol, and does not amidol owe its energy to hypo?

Pure hypo is of an alkaline reaction, and that speaks in its favor in combination with amidol; the small amount of carbonate is perhaps just enough to establish an equilibrium. If the developer is not strictly neutral, it can be but slightly acid; in either state it performs its astonishing feats.

Pure amidol when mixed with sodium sulphite containing of the pure salt as much as 84 or 86 per cent., gives a solution durable for several weeks, the hydrochlorate keeping probably better than the sulphate. When alkali is added, the solution turns red, finally brown and loses its energy.

The best method of preparing amidol developer is to keep on hand a solution of neutral sulphite, add amidol to it for immediate requirements, and dilute accordingly. One ounce of developer should contain from 2 to 3 grains of amidol. The old mustard spoon formula, so popular in the time of dear old pyro might as well and as profitably be adopted for amidol.

A very convenient form of amidol is the cartridges prepared by Dr. Andresen, of Berlin, and Hauff, of Feurbach. Solutions of either of them keep perfect for some time, and when properly diluted form excellent developers.

OUR HAND-CAMERA COMPETITION.

In our last issue we gave the names of the successful prize winners in our first competition.

We are very much pleased with the amount of interest that has been taken in this. As a new venture we were naturally somewhat doubtful as to the results, but these have entirely surpassed our most sanguine expectations. Our readers came up to the front well, and some six or seven hundred pictures were entered. Considering the fact that the competition was limited to one class of work only, we consider this number remarkably good.

The Judges pronounced the average quality of the work to be surprisingly high.

With regard to the prizes we must, of course, point out that the decision of the Judges is absolute and final. We appointed three gentlemen well-known in the photographic and artistic world to do this work, and considerable praise is due to them for the amount of care and attention they devoted to the matter.

The judging was conducted on the fairest principle that was possible. The identity of the competitors was not revealed until after the awards had been made. The Judges worked separately and gave different numbers of marks to each competitor according to their opinion of the respective values of the work. The artistic and technical sides were both taken.

The numbers of marks allotted to each person by the three Judges were then added together and the result was as given in our last.

Mr. Edgar G. Lee, the first prize winner, is well known in England and in this country as a successful hand-camera photographer. He has secured very many medals and prizes for this work.

Miss Clarkson is also not unknown to our readers as a successful photographer.

Mr. W. B. Post is one of the best and most careful members of the New York Society of Amateur Photographers.

Mr. W. D. Welford is the editor of the *Photographic Review of Reviews*, an excellent English magazine. Mr. Welford takes a very great interest in hand-camera work, and has done much toward making it more popular in England.

Mr. J. H. Stebbins is another well known and active member of The New York Society of Ama-

teur Photographers, and Mr. A. P. Schoen has also distinguished himself on many occasions by his excellent work.

In as early a number as possible we shall reproduce the whole of the pictures which have received the highest award, and also selections from the work of other prize-winners and competitors.

There were many who sent in two or three really good pictures, but the set was spoiled by being made up with medium class work.

We trust, however, that the unsuccessful competitors will not despair because they have not taken a prize. If success is not yours this time, try again.

All we ask is that the same amount of interest will be taken in our "open landscape" competition, particulars of which will be found on another page. Who will take the *first* PHOTOGRAPHIC TIMES medal?

EDITORIAL NOTES.

IT is a great pleasure to us to hear that a large amount of interest is being taken in our second prize competition and there is no doubt that there will be a hard contest for the medals and certificates that we offer.

ACCORDING to an English contemporary we learn that an ingenious and effective contrivance for the production of stereoscopic views on the lantern screen has just been exhibited at a private gathering at the Photographic Exhibition in Pall Mall. It is the invention of Mr. Anderton, and is based on well-known phenomena of polarized light. A bi-unial lantern is used, and the two pictures which compose an ordinary stereoscopic transparency are separated and placed one in each lantern. Fitted to the objective of each lantern is a polarizer, the two being so placed as to be at right angles to each other. The two similar pictures are then superimposed upon the screen, and the spectator looks at them through a double eyepiece, also fitted with polarizers placed at right angles to one another. The effect will be readily understood by all who are familiar with the laws of the polarization of light. A ray of light will pass through two polarizers placed parallel to one another, but it is quenched by two polarizers placed at right angles to one another. The polarizer in the right eye-piece is parallel with the polarizer in front of one of the pictures, and at right angles to the polarizer in front of the other, and thus the right eye sees only one of the two pictures. Similarly the left eye sees only the other, and when looked at through the eye-pieces the two pictures combine, producing just the realistic effect of the double picture in an ordinary stereoscope. The screen used by Mr. Anderton is of silver foil, as an ordinary white screen would have the effect of depolarizing the light. The result we are told is wonderful. Looking at the screen with the naked eye one sees a blurred picture in which every outline is doubled; looking at it through the eye-pieces he sees a clear view, in which the objects stand out from one another with startling realism.

THE *London Optician* is of opinion that if Ives were to adopt a similar method of projection through color screens "the result would be an unparalleled achievement in spectacular optics." Certainly a plan of projecting pictures upon a screen which will not only appear stereoscopically, but also with the colors of nature faithfully rendered, seems like a wild dream, but there can be no doubt that we are not far from the actuality.

THE *Photographisches Archiv* gives a method of testing sodium sulphite for acidity, especially when intended for preserving pyrogallol in solution. Pyro with alkaline or neutral sodium sulphite rapidly turns brown and produces fog on the developed plate.

Handbooks and formulas usually say "a few drops of sulphuric acid are sufficient to acidify the solution," but that is by no means the case, as very often much larger quantities are required to render it distinctly acid. In fact, a sufficient quantity of acid should be added to make the blue litmus paper turn red immediately.

WITH hydroquinone and eikonogen, acid sodium sulphite does not appear to be absolutely necessary. The amount of acid to be added depends very largely upon the quantity of sodium carbonate present.

A sodium sulphite containing 86 per cent. of the pure salt like that manufactured by Dr. Andresen would necessarily require a great deal less acid than the ordinary commercial article with which it often happens that from 30 to 35 per cent. is made up of foreign substances. Besides sodium carbonate a considerable quantity of sodium hyposulphite is also, in many cases, present.

BY the method recommended by the *Archiv* the presence of hyposulphite could be easily detected.

Sulphuric acid added to sodium sulphite evolves sulphurous acid, but the solution remains clear. The same acid added to sodium hyposulphite also evolves sulphurous acid but the salt is decomposed and the sulphur is precipitated. If the addition of the acid is continued until the sulphur is thrown down the latter can be collected and it would then be an easy matter to calculate the amount of hyposulphite contained in the sodium sulphite.

PHOTOGRAPHY has undoubtedly become a ready assistant to all sorts and conditions of men. It is not, however, with feelings of pleasure that we learn that the latest class of persons to take advantage of its assistance is the house burglar. Tharland's *New Zealand Journal* reports that a party of light-fingered gentry, under the guise of traveling photographers, have been perambulating the suburbs of Auckland. "They establish themselves in front of a house, and then request the family to assemble in a group—the servant must not be omitted. While the operator is arranging and pretending to "take" the party, another operator has sneaked round to the back door, and is taking up whatever unconsidered trifles he can lay his hands upon. It is time that something was done to stop the nuisance, for it is going rapidly from bad to worse."

ORTHOCHROMATIC PHOTOMICROGRAPHY.

Two great factors in the recent advancement of photomicrography have been, first, rapid dry-plates, and second, color-correct or orthochromatic photography. When it is generally known among photographers and microscopists that they can obtain good photomicrographs from the various stained microscopic objects by the use of color-sensitive dry-plates, more of the workers may resort to this method for illustrating and preserving their work. In the past it has been the custom of those who mount objects for sale, to use a brown stain for such objects as were intended to be photographed. While such objects are much easier to photograph than the red and blue stains they are by no means a necessity, and any worker with a little patience and skill can get good pictures of most any preparation by the use of the orthochromatic dry-plates. While it is comparatively easy to get good results from sections stained brown or black, many of the most beautiful and valuable objects for the microscope are stained in red or some of its combinations, and would be entirely unfit to photograph by means of the ordinary dry-plate, but with the orthochromatic dry-plates the writer has experienced little difficulty in obtaining excellent results. This method does not necessitate the use of colored screens, it requires less skill in technique, and gives good results with an ordinary kerosene lamp as the illuminant.

A recent author says: "It may be asserted that the man who wishes to produce photomicrographs of general utility, and still more, he who aspires to march anywhere near the van of the photomicrographic army, must master orthochromatic photography. The majority of the most useful objects are only to be rendered to the best advantage by color-correct plates, and a large number of objects cannot be photographically rendered at all without such plates." He further advises the beginner to provide himself with the ortho plates at the start.

Plates have been prepared that are more or less sensitive to the various colors, but the usual way is to make a plate more sensitive to yellows than the ordinary plate, and a little less sensitive to violets and blues, and to assist the action when necessary by neutralizing the blue and violet by means of yellow screens.

By consulting the latest authorities on photomicrography the reader will be able to learn the details of the preparation of stained plates, but the writer has preferred to use the excellent ready-prepared plates made by Mr. John Carbutt of Philadelphia. I have used both his orthochromatic plates and celluloid films, and always with pleasure and satisfaction. They work well with any of the various developing fluids, but more especially with pyro and Carbutt's eikonogen and hydro developer. The photomicrograph of double-stained blood corpuscles are from a negative developed with pyro. I use the sens-23, a plate that I have found most satisfactory for such work. With bacteria, stained with gentian violet, or methyl blue (two of the favorite stains) and kerosene illumination, these plates work well.

In the above we have attempted only to give a few hints as to what may be done in orthochromatic photography, hoping thereby to direct the attention of workers not familiar with this useful method, to a means that will lighten their labor, stimulate exertion, and advance photomicrography. For a more complete information on this subject we would refer the reader to a recent book by Pringle, of London, published by the Scovill & Adams Co.

W. N. Sherman, M.D.

THE WILDERNESS HUNTER.

Mr. Theodore Roosevelt has written several interesting books descriptive of his hunting exploits in our great West, but no book, we venture to assert, which will be read with more interest, especially by photographers, than this one entitled "The Wilderness Hunter."* A great charm of this volume lies in its illustrations, especially in the reproductions from actual photographs of large game, interesting hunting scenes, and inspiring natural landscapes which it contains.

Some of the pictures are from negatives by the author himself, showing that Mr. Roosevelt is a skillful photographer as well as an unerring shot. Others are by Mr. A. S. Bennett, and these also are very fine. We present our readers one of each with this article. The remainder of the illustrations are from drawings by Henry Sandham, A. B. Frost, C. Harry Eaton and J. Carter Beard. They are all excellent, appropriate and interesting.

Our first illustration, "A Startled Family," from a negative by Mr. Bennett, is remarkable in that the photographer was allowed to approach so near his timid subjects. But, as Mr. Roosevelt writes, "Although in places where it is much persecuted the Black Tail is a shy and wary beast, the successful pursuit of which taxes to the uttermost the skill and energy of the hunter, yet, like the elk, if little molested it often shows astonishing tameness and even stupidity. In the Rockies I have sometimes come upon black tail within a very short distance, which would merely stare at me, then trot off a few yards, turn and stare again, and wait for several minutes before really taking alarm." That is the time for photographing, when the deer, more startled than frightened, stands motionless in irresolute surprise before bounding off into the copse.

Our other illustration, "A Successful Shot," is from a photograph by the author. Thus writes Mr. Roosevelt in regard to hunting the white goat, which is the subject of this picture:

"On another occasion I shot a white goat while it was in a very curious and characteristic attitude. I was hunting, again with an old mountain man as my sole companion, among the high mountains of the Kootenai country, near the border of Montana and British Columbia. We had left our main camp, pitched by the brink of the river, and were struggling wearily on foot through the tangled forest and over the precipitous mountains, carrying on our backs light packs, consisting of a little food and two or three indispensable utensils, wrapped

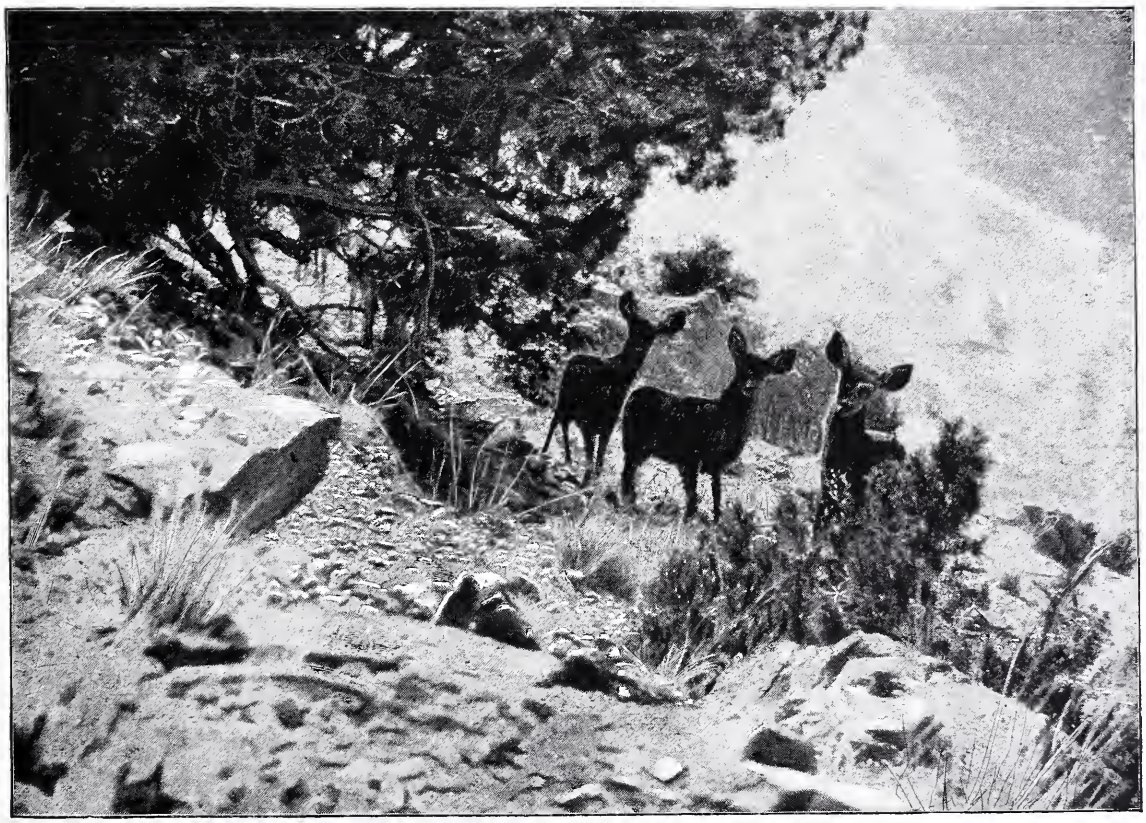


Photo by A. S Bennett.

A STARTLED FAMILY.

* The Wilderness Hunter, by Theodore Roosevelt. New York: G. P. Putnams's Sons.

in our blankets. One day we came to the foot of a great chain of bare rocks, and climbed laboriously to its crest, up cliff after cliff, some of which were almost perpendicular. Swarming round certain of the rock shoulders, crossing an occasional sheer chasm, and in many places clinging to steep, smooth walls by but slight holds, we reached the top. The climbing at such a height was excessively fatiguing; moreover, it was in places difficult and even dangerous. Of course it was not to be compared to the ascent of towering, glacier-bearing peaks, such as those of the Selkirks and Alaska, where climbers must be roped to one another and carry ice axes.

down showers of detached stones, so that the goats are not very sensitive to this noise; still, they sometimes pay instantaneous heed to it, especially if the sound is repeated.

"When I peeped over the little ridge of rock, shoving my rifle carefully ahead of me, I found that the goats had finished feeding and were preparing to leave the slope. The old billy saw me at once, but evidently could not quite make me out. Thereupon, gazing intently at me, he rose gravely on his haunches, sitting up almost in the attitude of a dog when begging. I know no other horned animal that ever takes this position.

"As I fired he rolled backward, slipped down



Photo by the Author.

A SUCCESSFUL SHOT.

"Once at the top we walked very cautiously, being careful not to show ourselves against the sky line, and scanning the mountain sides through our glasses. At last we made out three goats, grazing unconcernedly on a narrow grassy terrace, which sloped abruptly to the brink of a high precipice. They were not very far off, and there was a little rock spur above them which offered good cover for a stalk; but we had to crawl so slowly, partly to avoid falling, and partly to avoid detaching loose rocks, that it was nearly an hour before we got in a favorable position above them, and some seventy yards off. The frost-disintegrated mountains in which they live are always sending

the grassy slope, and tumbled over the brink of the cliff, while the other two, a she and a kid, after a moment's panic-struck pause, and a bewildered rush in the wrong direction, made off up a little rocky gully, and were out of sight in a moment."

The book is full of interesting accounts of hunting adventures like the foregoing. It takes the reader all over the great West. It describes the various game, and life on the plain and in the forest. It is not only an extremely interesting book to the lover of out-door life, but is instructive as well, and with its illustrations makes a very handsome and attractive volume.

THE FATHERS OF PHOTOGRAPHY.

II.—Joseph Nicéphore Niepce.

Joseph Nicéphore Niepce was born at Chalons-sur-Saone on March 7th, 1765. His father, Claude Niepce, was steward to the Duke of Rohan-Chabot and his mother was the daughter of a celebrated barrister. He was in his early youth educated for the church, but the outbreak of the revolution upset all his plans and he exchanged the cowl and staff for the helmet and sword. At Nice he fell very sick and was nursed by a lady whom he afterward married and settled down. His brother Claude soon after joined him. The two brothers were devotedly attached to each other and employed a great part of their time in experimenting together. Their united labors first resulted in the construction of a kind of velocipede propelled by hot air and which was called the Pyreolophore. Claude endeavored to bring this invention before the public, and for this purpose went to Paris, but being unsuccessful in that city he crossed over and took up a residence at Kew in England.



THE FATHERS OF PHOTOGRAPHY.
II.—Joseph Nicephore Niepce.

It was apparently during the absence of his brother that Nicéphore directed his attention to lithography. He had heard of Senefelder's invention, and the idea struck him that it would be possible to reflect an image on the stone that would remain there after the shadow had passed away. His experiments resulted in his discovery of the bitumen process.

It was in the year of 1816 that Nicéphore Niepce first photographed in the camera. Writing to his brother he says:

"I placed my apparatus at the open window of the room where I operate, in front of the pigeon-house, and made an experiment in the usual manner. I obtained on the white paper the whole of that portion of the pigeon-house which is seen from the window, and a faint image of the casement, which was less brilliantly lighted than the exterior objects. This is, of course, but a very imperfect experiment, and the image reflected was of the most minute dimensions. The possibility of obtaining a picture by this method appears to me probable, and I will hasten to let you know the result of my labors as soon as possible. I am well aware that there are still many difficulties in my path—above all, the problem of fixing the colors; but with steady perseverance and much patience I hope to succeed in working out my designs. That which you foretold has happened; the ground of the picture is black, and the images are white—that is, lighter than the ground.

"I believe a method of obtaining pictures by this means might be made use of, and I have seen engravings of a similar description. It may not be impossible to change the disposition of the colors, and I have made some experiments in this direction which I am anxious to verify."

On the 19th of May, 1816, he gives a description of the first photographs from nature that were ever taken in a camera, more than twenty years before Daguerreotype was made known:

"I have to enclose two pictures taken by my process. You will be able to judge of the effect better by placing yourself somewhat in the shade, and holding up the pictures, placed upon an opaque body, against the light. A picture of this description is, I believe, subject to alteration after a time, as, although proof against the action of light, the reaction of the nitric acid in its composition will have the effect of destroying it; it is possible also that the prints may become damaged by shaking and jolting during their transport. This is, of course, merely an experiment; but if the materials were rather more sensitive (as I hope to obtain them), and, above all, if the order of the shadows was inverted, the illusion would, I think, be quite complete. . . . The two pictures were made in my operating-room, and the field is merely the diameter of the casement.

"My future investigations will be conducted with a threefold object:

"1. To obtain a clearer definition of the reflected image.

"2. To transpose the tints or shadows.

"3. To fix the tints—an operation which is by no means an easy one."

Niepce's process was based upon the light-sensitive properties of bitumen or asphaltum. A metal plate was coated with this and exposed in the camera. Those parts acted upon by the light be-

came insoluble while the remainder were dissolved away by steeping the plate in oil of lavender and petroleum. The pictures, as may easily be supposed, were not of much value, and very imperfect, owing to the feebleness of the image. The plate had to be exposed for ten or twelve hours. The process, however, resulted in one great discovery, *i. e.*, that of an engraving process by etching the metal plate in the parts not covered with the asphalt. Many processes based upon the same principle are worked even to this day.

Soon after this he heard of a new camera devised by Daguerre. Niepce placed himself in communication with Daguerre and a deed of partnership was executed to enable them to work out the process together. Two years after, Niepce died and his place was filled by his son Isidore.

AN ABLE CANE.

"BROWN promised to go to the photographer's with me, but at the last moment he refused."

"Why?"

"Some one hit him across the forehead with a walking stick and Brown said he didn't want to have his picture taken with the brand of cane upon his brow."

THE ART AND PRACTICE OF COLLODIO-CHLORIDE PRINTING.

(*Continued from page* 599.)

CHAPTER II.

CHOICE OF PAPER AND VARIOUS EMULSION FORMULAS.

IN Chapter II. in the series of articles on the gelatino-chloride process we have dealt at length upon the importance of using pure paper, and as the same papers are used for the collodion process we need only refer our readers to this. The collodion papers of commerce are prepared chiefly upon the enamel or baryt paper, which serve to keep the sensitive film on the surface and so come into close contact with the negative, reproducing the finest details. An ordinary white paper can be used provided it is chemically pure. We know of but few papers that answer this important condition. Rive's, Saxe, and Steinbach are all of pure quality and can be used with safety; others must be experimented with.

Having selected our paper, we must next consider the formula to be employed. We will first give several that have been recommended by com-

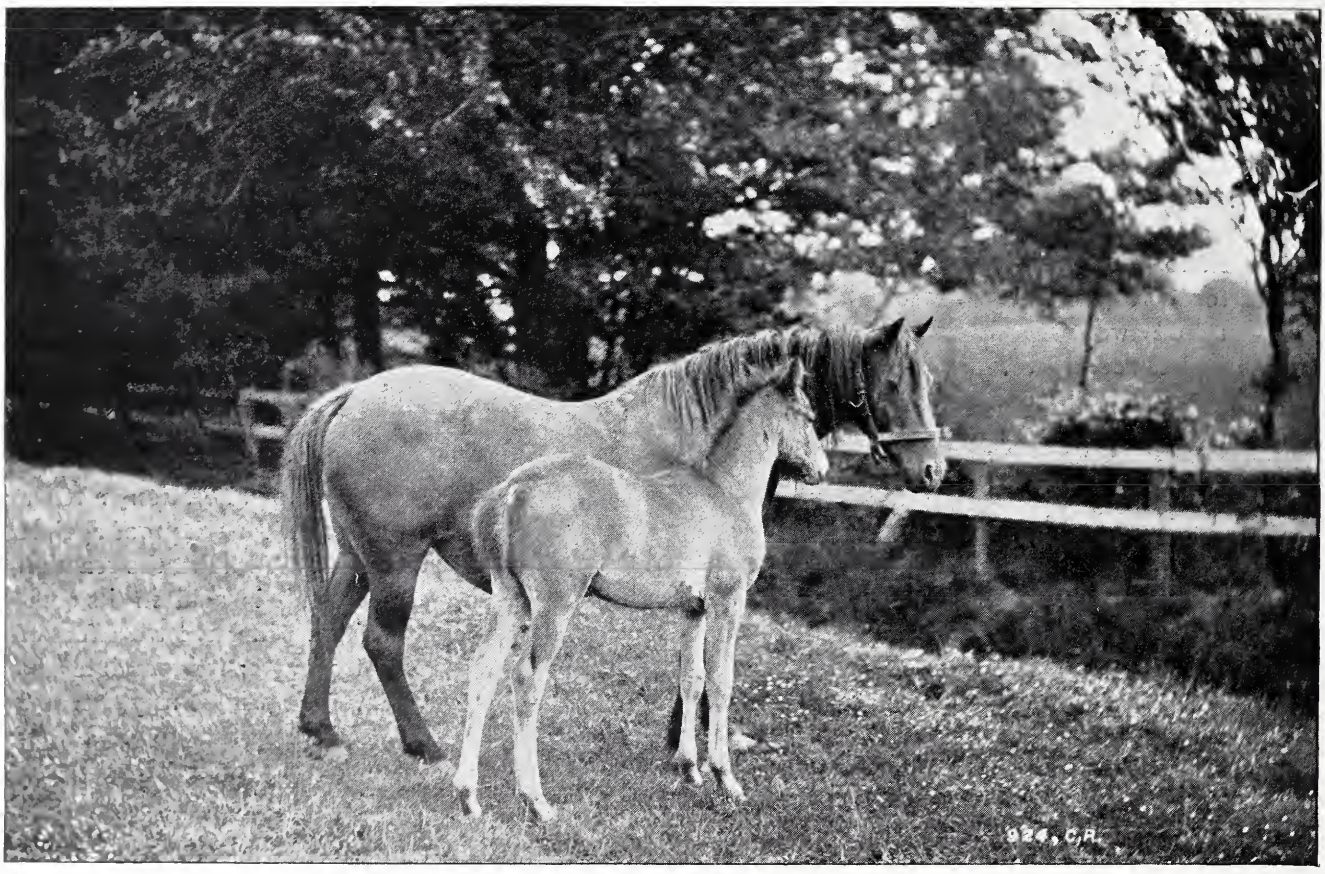


Photo by C. Reid, Wishaw, Scotland. Weeks' Engraving Co.

MOTHER AND DAUGHTER.

petent authorities and then detail one which has given us most satisfactory results.

The first formula was Simpson's, and, although old, it can be made to yield really good pictures. To each ounce of methylated spirit 16 grains of silver nitrate are added by triturating the salt in a mortar, then adding the spirit a little at a time, and pouring it off until it is dissolved. A stock solution of this can be made, and to each ounce of it 1 ounce of ether is added and the necessary proportion of soluble gun cotton The proportion of cotton depends much upon its quality ; of some samples 6 grains to the ounce gives a collodion quite thick enough, and with other kinds 10 or 12 grains to the ounce may he required.

After the collodion is formed is added ¾ of a drachm of a solution of chloride of calcium or alcohol, 16 grains to the ounce. This is added a drop at a time, the collodion being shaken between each addition. The sensitive emulsion ready for use is thus formed.

Geldmacher's formula is as follows :

"A plain collodion is prepared with equal parts of ether and alcohol and from 2 to 3 per cent. of pyroxilin. With a thin collodion it is easier to obtain a coating of even thickness upon the paper than with thick collodion ; it must, however, not be poured off so soon as the latter. If the film is unequally thin, either from too thick a collodion or from uneveness of the paper, different tones will be seen in the picture, as the thicker places will appear less toned and the thinner ones more so. An old collodion which has been standing some time is to be preferred to one newly prepared—it is more perfectly combined and cleaner ; at the same time it must be most carefully poured off from any sediment that has been deposited. A little castor oil is added—not more, however, than half per cent.—otherwise the high glaze of the picture is injured and the toning made difficult.

" In a small glass put 200 grains of nitrate of silver and 3½ drachms of water ; when the silver is dissolved, 9 drachms of alcohol are to be slowly added. Fifty grains of citric acid are also dissolved in 1½ ounces of alcohol and 50 grains of chloride of strontium in another 1½ ounces of alcohol.

" Instead of chloride of strontium, other chlorine compounds may be employed ; but one will do well to keep to that one that produces results most to the taste of the individual. Chloride of calcium prints too blue, so that it is impossible to properly control the toning ; one must then work according to time rather than by sight, and that is always a delicate thing to do, for the temperature of the air, the water, and the solutions is not always the same. Chloride of ammonium prints of a reddish color, and the toning bath will not work so well ; it appears to have a retarding action on the toning. It also appeared to me that the different chlorides give different grades of sensitiveness to light ; with chloride of calcium the printing is quicker than with chloride of strontium ; but for the reasons given, I prefer the latter. Chloride of strontium, especially on paper prepared with gelatine and baryta, prints of a rich red, and the action of the gold bath is very easily observed. The chloride of silver collodion which I prepared commercially contained chloride of strontium.

" When the ingredients mentioned are perfectly dissolved, the citric acid is added to the solution of chloride of strontium, and this solution mixed with 14 drachms of plain collodion, little by little and with shaking or stirring. When thoroughly mixed the silver solution is added to the collodion in a yellow light, very slowly and with much stirring. It sometimes happens that after the addition of the alcohol to the silver solution, some of the salt crystallizes out; the glass vessel must in that case be placed in warm water until the silver is redissolved, when it must be mixed with the collodion without loss of time. The collodion emulsion must then be repeatedly and thoroughly shaken, and after standing for an hour is ready to be applied to the paper."

Liesegang's formula is one that has given very satisfactory results in our hands. In a glass measure dissolve 8 grammes of nitrate of silver in 6 c.c. of distilled water, heat being applied. Drop this solution in a bottle containing 135 c.c. of alcohol. In cool weather it is necessary to place the bottle in a vessel containing warm water, add 8 grammes of soluble gun-cotton, and after a good shaking pour in 160 c.c. of ether. Further violent shaking will produce a grayish-white collodion. In another glass dissolve 1 gramme of chloride of lithium in 35 c.c. of alcohol, together with 1 gramme of tartaric acid. This solution is dropped into the argentiferous collodion, which must be kept continually moving. For vigorous negatives take more of the chloride, as softer prints result from doing so. If preserved in a well-corked bottle this collodion will keep any length of time.

Heirstadt's formula is as follows : 1.5 gramme of chloride of lithium, 1.5 gramme of nitric acid are dissolved by the application of heat in 50 c.c. of alcohol; this solution is added to 500 grammes of ordinary 4 per cent. collodion. 14 grains of acetate of silver are dissolved with the aid of heat in 6.7 grammes of distilled water, then added to

150 c.c. of diluted alcohol, which is heated to ebullition. The argentiferous solution is poured gradually into the chloride solution, and afterward from 4 to 6 grains of glycerine solution added.

In the *Deutsche Photo Zeitung* Herr Vollenbruch published the following process for the preparation of a collodion paper. The emulsion contains the following ingredients :

Strontium chloride	4 grammes.	61.7 grains
Lithium chloride..	2 grammes.	30.8 grains
Citric acid.....	8 grammes.	123.4 grains
Glycerine, pure..	12-14 c.cm.....	210 minims
Silver nitrate.....	28 grammes..	432 grains
Ether	100 c.cm.....	27 fluid drachms
Alcohol....	100 c.cm.....	27 fluid drachms
Collodion, 3 per cent. pyroxyline.....	800 c.c.m.....	216 fluid drachms

It is prepared thus :

A.

Dissolve the silver in 130 minims of water, then add 13½ drachms of alcohol, and mix it to half the quantity of collodion (108 drachms).

B.

Dissolve the strontium and lithium chloride in 1½ drachms of water, add 6¾ drachms of alcohol, and finally mix the whole to the remainder of collodion.

Now mix gradually, in shaking, meanwhile, B to A, and when the emulsion is made, add the ether and the glycerine. Allow it to stand for a few hours, filter and use. This quantity of emulsion is sufficient to coat from thirty to thirty-five sheets of paper 19 x 23 inches.

Walter E. Woodbury.

(*To be continued.*)

"DODGES."

[North Middlesex Photographic Society.]

(*Continued from page* 602.)

Intensification is, I think, almost outside our subject, especially as the matter has been so ably dealt with on other occasions. I am tempted, however, to say my own opinion is that, if thin negatives are cases of vexation, intensification, unless performed with great judgment, is, nine times out of ten, quite as bad, but there is a dodge or two in connection with it worth mentioning. The first is —dry your negatives quickly, and in a strong light it gives (or prevents them losing) density ; I fancy the latter. You will be surprised at the difference in a negative dried in a strong light, or even in the sun if the negative has previously passed through the alum bath, and one dried in the dark in a cold situation. The first will be of a rich brown color, the other of a grayish tone and of less printing density. Another dodge is slight intensification by the clearing bath, but it must be a clearing bath containing iron. The iron immediarely changes the color of the film, darkens the high lights, and at the same time clears the shadows, and so gives a crispness not originally possessed by the negative. A weak solution of plain iron, or the usual iron developer, will also intensify by changing the color of the film.

In some instances it becomes a necessity to reduce parts of a negative. A strong light through the branches of trees, a bright ray of light through a window or an archway, generally causes halation. In most of these cases it is possible to considerably modify the evil, or even entirely overcome it, by chemical or mechanical means. I recommend methylated spirit (it must be neat, not spirit and water) and must be used after the negative is dry, by applying a little to the part to be treated until it softens (don't be in a hurry about it), then, with a piece of chamoise leather rub the part until some of its blackness comes off on the leather, changing the leather when it gets dirty, and continuing until the desired effect is obtained. I only recommend this treatment for small patches, say not exceeding the size of a sixpence. For larger surfaces the remedy is often worse than the disease, as the result often appears unpleasantly smeary. It is effective on faces when too dense, also in bringing detail out in the folds of a white dress; but, like all remedies of this description, it must be used with discretion. Another method I have tried—rubbing down with brick dust, and find it effcctive on thick films. The way to use it is to rub your fingers on a piece of bath brick until the ribs on the skin are worn down, and the fingers quite smooth ; the finger will then have adhering to it sufficient of the fine dust to reduce density on the face, etc. This will not do for thin films.

C. O. Gregory.

(*To be continued.*)

ON THE POWER OF COMPENSATING IN DEVELOPMENT FOR VARIATION IN EXPOSURE.

[British Photographic Convention.]

(*Continued from page* 601.)

I considered that the last set of experiments described indicated powers to compensate in development for exposures varying as one to considerably more than 100 without resort to intensification, as one to several hundreds having resort to intensification, hence experiments to be described presently.

C.

These experiments were undertaken as introductory to a set of experiments with the ferrous oxalate developer. The instruetions were as follows:

" Prepare a saturated solution of oxalate of potash and another of ferrous sulphate (each at a temperature of 65 deg. Fahr.), and make each acid enough with sulphuric acid to turn litmus paper quickly red."

" Develop all A halves with normal pyro and soda developer."

" Plate No. 17B develop with one part iron solution to three parts oxalate solution."

" Plate No. 18, one part iron solution to four of oxalate."

" Plate No. 19, one part iron solution to six parts oxalate."

" Plate No. 20, one part iron solution to ten parts oxalate."

" All plates, both A and B, to be developed either till slight fog appears or till all action seems to have ceased for some time."

One result of these experiments is to show the very slight difference in the action of this developer by variation in the ingredients, except in so far as time of development is concerned. As the developer becomes more diluted the opacity throughout is slightly increased, but this is really because the fog point came comparatively earlier with the concentrated than with the dilute developers, and in each case development with oxalate had to be stopped because the fog point was reached.

Another thing it shows most strikingly is the inferiority of ferrous oxalate, at any rate without the addition of bromide, in the rendering of gradation. A print from plate No. 18 is sent to illustrate this. It will be seen that, in the half B, the greatest opacity is reached at about the eighth strip, after which reversal takes place, whereas, in the case of the half A (pyro developed) opacity increases nearly to the end of the line. Here both the opacity and density curves cross, and the density ratios are not the same.

D.

"Develop all halves A with 'normal pyro and soda developer.'"

"All oxalate developers to be made up of one part of the iron solution, already mentioned, to four parts of oxalate of potash solution."

"No. 87B to be developed with the above normal ferrous oxalate solution, without bromide, till slight fog appears, or till all action appears to have ceased for some time."

"No. 88B to be developed with ferrous oxalate developer having one grain of bromide of potassium per ounce."

"No. 89B to be developed with ferrous oxalate developer having two grains of bromide of potassium per ounce."

"No. 90B to be developed with ferrous oxalate developer having four grains of bromide of potassium per ounce."

"No. 91B to be developed with ferrous oxalate developer having eight grains of bromide of potassium per ounce."

"No. 88B to have one strip restrained."

"No. 89B to have two strips restrained."

"No. 90B to have three strips restrained."

"No. 91B to have four strips restrained."

Prints are sent of the results of all these exposures. It will be seen that, by stopping development before it is complete, in cases where bromide has been added, we have the power of compensating for variation in developing, or of varying the results of constant development, as in the case of the pyrogallol developer, though I am not prepared to say that the curves of either opacity or density actually cross in the cases under consideration.

W. K. Burton.

(*To be continued.*)

Notes and News.

Who will secure the first PHOTOGRAPHIC TIMES medal?

Photographers who keep abreast with all advances in this art, declare THE TIMES indispensable in their studio. —*The Freemont Journal.*

"Industrial Photography," the new book by P. C. Duchochois, is now ready. It is a work possessing a special value for the professional.

Miss Emma J. Fitz, of Boston, has been awarded a medal at the recent Exhibition of the Photographic Society of Great Britain.

The Christmas Number of THE PHOTOGRAPHIC TIMES will contain thirty-six pages of reading matter, four full-page illustrations, including a photogravure and a picture in colors, and over fifty half-tones from photographs.

Mother and daughter is another charming animal study by Mr. Chas. Reid, of Wishaw, Scotland. The picture has been reproduced by the Weeks Engraving Co. and serves as a fine sample of their work.

It is with considerable pleasure that we learn that Mr. John Carbutt, the well-known dry plate maker, has been awarded a medal and highest honors by the Jury of Awards at the World's Fair, Chicago, for his excellent productions.

Photographic Societies.

The Society of Amateur Photographers of New York will hold an exhibition of lantern slides, consisting of views by the Cincinnati, Schuylkill, Baltimore, and Newark Camera Clubs, on Friday evening, October 27, at eight o'clock.

The Editorial Table.

King's Handbook of New York City. Edited and published by Moses King, Boston, Mass.

We have received a copy of this excellent work. It is the second edition, but is by no means a reprint of the first, which was published last year. It gives a perfect description of New York in 1893, and is much larger and more complete than the previous volume. Notwithstanding that its price is but two dollars, it contains over a thousand pages and more than a thousand remarkably good half-tone illustrations from photographs of New York, its buildings, parks, etc., and the chief business houses. Altogether the most complete work of the kind we have seen.

The "Zelica."—The A. M. Collins Mfg. Co., with characteristic enterprise and good taste, have recently introduced a new and ingenious mount possessing many desirable features. The new mount is called the Zelica, and is patented. It consists of a card with a mat hinged at the top, the card being coated with Slee's preparation, so that it is only necessary to moisten the print, lay it upon the face of the card, then moisten the edges of the card and fasten down the mat over the print. These mounts are made with plain beveled edges, or with gold beveled edges. A print thus mounted makes a very effective appearance.

Record of Photographic Patents.

505,813. Camera. Edgar R. Bullard, Wheeling, W. Va.

505,872. Frame for Pictures or Cards. Henry Biederman, New York, N. Y.

505,968. Photographic Background. James H. Titus, Tarentum, Pa.

506,025. Photographic Posing Chair. John Winter, sr., Syracuse, N. Y.

506,109. Half-tone Negatives for Photo Processes. Fredrick J. M. Gerland, Bayonne, Jersey City, N. J.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious. The possession of a PHOTOGRAPHIC TIMES Medal will, therefore, be a guarantee of high merit.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

CHRISTMAS PRIZES.

We will send THE PHOTOGRAPHIC TIMES free for one year to the sender of the best Christmas story dealing with photography in any shape or form for our Grand Triple Christmas Number. The story must be original. We will also forward THE PHOTOGRAPHIC TIMES free for one year to the sender of the best photograph suitable for reproduction in this Christmas Number, also for the best article upon a photographic subject.

The editors reserve the right to reproduce in this magazine any article, story or photograph sent, whether such has received the prize or not.

MSS. or photographs sent will not be returned unless stamps be sent for that purpose.

All entries should be marked "Christmas" and sent to the editors of THE PHOTOGRAPHIC TIMES, 423 Broome Street, New York, not later than the 30th of November.

Queries and Answers.

154 H. S., Troy, N. Y.—Will you kindly tell me who first introduced the Iris diaphragm in photographic lenses? I have heard so many different parties credited with the invention that I really should like to know who is entitled to it?

154 *Answer.*—The Iris diaphragm was first constructed by the German, Schnitza, then a partner with C. C. Harrison. The first of these diaphragms we remember to have seen was attached to a 14 x 17 Harrison portrait lens, probably in 1858, if not before. It was called Harrison's Patent Diaphragm, but was the same as the Iris, which is being used by various lens makers. The Harrison lenses to which these diaphragms were first attached were owned by the Scovill Mfg. Co. many years ago.

155 L'EMPIRE.—Metol, I have noticed in several photographic journals, is a serious poison, which makes me afraid to use any of those new developers, not excepting amidol, which seems to me is the most energetic reducing agent we know of. I wish you to tell me something about the poisonous nature of the developers principally in use.

155 *Answer.*—Metol attacks the cuticle of fingers and hands, and makes them sore, something like bichromates do. Of the other new organic developers nothing adverse has been as yet reported, and they are believed to be perfectly harmless, which cannot be said of dear old pyro. Pyrogallol is known to be a rank poison. Its effects upon the human body are very much like those of phosphorous, and combined with most terrible pains.

Two grains of clear pyro will kill a dog within a few minutes after entering the stomach.

156 HARRY P. G.—What is the advantage of the Scovill adjustable washing box for the washing of negatives? My negatives are washed in a tray, changing the wash water several times at intervals of 10 minutes.

156 *Answer.*—Your method of washing is quite commendable, but what would you do if you had 1 dozen or more negatives to wash? The Scovill box keeps the negatives in vertical position, the remainder of fixing soda in the plate is removed by a flow on the bottom of the box, while fresh water is supplied at the top.

The advantage of the washing box is the saving of time. With it you can wash 24 negatives in the same time two would be washed by your method.

157 NO MAN'S LAND has a small portrait gallery, but can not light a face or figure as nicely as others. He asks for advice, how to do it well?"

157 *Answer.*—Send us a detailful description of your skylight room, with diagrams if possible, and we will be better able to tell you how to place the subject than from your letter.

158 N. P. A. has sent us several 6½ x 8½ photographs printed from seemingly very good negatives. They have but one fault, namely, one half of the sky of each of them is hazy, light struck as it were, and the other half is perfectly clear and brilliant.

158 *Answer.*—When examining the proof while the process of printing was going on, the looked at half has been exposed to light, and repeatedly so, we guess.

Chautauqua Department

of the

Photographic Times.

Conducted by PROFESSOR CHARLES EHRMANN.

OCTOBER, 1893.

As we resume the issuing of the Chautauqua department in the autumn of the year, a report on the summer session of the school has always appeared to be welcome and interesting enough to all members and ex-members of the school.

We are under great obligations to the graduates of this year, as well as to many other students for the very beautiful specimens of their work presented to the instructor for public exhibition. As we advance slowly but steadily, so do we progress in accomplishments. The general average of pictures exhibited last summer is higher in quality, and larger in numbers, than ever before. Greater artistic taste has been displayed by the majority of students, and from the technical point of view, very many of the pictures deserve to be called excellent.

Orthochromatic methods were well represented, the non-halation plate has made a favorable record, and of printing methods, those on albumen paper, on chloride of silver gelatine emulsion were mainly represented. Of mat surface prints we had some very beautiful platinotypes, the usual cyanotype prints and a few kallitypes not above mediocrity, however.

There were 53 exhibitors, not more than usual in the average, but besides the decidedly better quality of photographs, they had sent much larger collections than in former years. As among them were many from China, South and West Africa, from Hindostan and South America the subjects were especially interesting to our visitors.

The summer class has not been as well patronized this, as in former years, the same with every other institution on the Assembly grounds, the World's Fair at Chicago having absorbed the general interest of even the most enthusiastic Chautauquans. But few students attended to pursue the study of language or science, or to apply themselves to become skillful in arts. The year 1893 is an off year, we heard everybody say, and everybody was consoled.

We did not hold any public lantern slide exhibitions, but had several private ones in cottages where adepts and photographic amateurs combined with us to spend a pleasant evening to admire the work of the camera. At these gatherings students of other classes participated, and with musical performances, with dumb bells and the Indian club, recitations and the inevitable watermelon and ice cream, many pleasant hours have been spent.

Notice to Students.

A new course of instruction has been opened in the *Advanced Class*.

Students of the first term will read in Harrison's Chemistry, pages 1–20 and 168–214 (pages 66–167 are recommended for private reading), and in Burton's Optics the first three chapters.

Students of the winter term 1893–94 will read in Harrison's Chemistry, pages 214–280, and of Burton's Optics, chapters IV., V., VI., VII.

Examination papers, accompanied by six finished photographs, must be returned to the instructor before February 1, 1894.

The local class of Chautauqua School of Photography will open on Nov. 18, 1893. Term closes the 2d Monday of May, 1894. Class hours, every Saturday and Monday from 9 A.M. to 12 M. For particulars see Advertisement.

We call attention to the new "Kloro" printing-out, and the bromide of silver paper manufactured by the Photo-Materials Co. of Rochester, N. Y. "Kloro" we opine is the best chloride of silver gelatine emulsion paper we have ever handled. The method of fixing before toning (see The Photographic Times, page 510) first proposed by Mr. Gus Milburn, is the best safeguard against insufficiently fixed prints, of which so many justifiable complaints have been made. We advise our students to fix before toning.

The bromide paper of this new company is of the old orthodox and good quality. Any of our students desiring to return to bromide printing are advised to use it, and to develop with eikonogen in one solution (see page 43 of "The Photographic Instructor" 4th Ed.) but much more diluted than there prescribed.

The Photographic Times Second Competition.

The subject in the second contest is, "General Landscapes." We'd like very much our more advanced students to compete. We would feel proud indeed if any of them would carry a premium from the arena.

The Exchange Club.

No quorum of members being at the Assembly Grounds at any time during last summer, the annual meeting was not held and no election of officers took place. Mr. Henry E. Canfield having positively declined to serve any longer as President, the other officers similarly inclined, and no provisions for reorganization having been made the Club was actually defunct.

Several members applied to the instructor of the school to appoint a new Board of Officers, and effect a re-establishment of the Club.

The appointment resulted: President, Mr. Robert Whittet, of Richmond, Va.; Secretary and Treasurer, Mrs. C. L. Pierce; Assistant Secretary, Mr. G. W. Hart.

Mr. Whittet accepted the appointment and addressed the Club as follows:

It is with no small gratification I have received notice of my appointment to the presidency of The Chautauqua Photographic Exchange Club. During the short time I have enjoyed membership in it, it has been a source of pleasure as well as of strength and encouragement in continuing the valuable instruction so kindly tendered to us by the Instructor of the Chautauqua classes. In accepting the office it will be my earnest endeavor to further the purposes of the Club in every way possible; and to this end I would respectfully call upon all the present membership to renew their allegiance to the Club, and exert their best endeavors to make it a means of furthering themselves in the practice of the beautiful art we have taken to as a source of pastime and pleasure.

I have been too short a time a member to enable me to speak of the work of the Club in the past; but of that time I can say that, while some of the examples sent have been such as to whet the ambition of "be up and do equally well," yet many have shown that they had the ability to do a great deal better, if they would but determine to *do their best.*

It is true that we are "only amateurs," and that the usual expectation to be derived from our amateur in any art is not that of excellence; but this is correct only in the initiatory stages, for the true amateur, leaving to the professional all the commercial walks, and refusing to engage in the profit-making aspects of the art, takes to it in love of it, esteeming it a pleasure and a joy, which is not to be satisfied with less than the attainment of the highest excellence. However little we may have already attained, let it be the aspiration of all the membership to attain to the first rank in the race for excellence.

It may be remarked that there are two directions in which this excellence will be looked for, 1st. The artistic presentation of a subject, and 2d, the technical execution. Any picture is supposed to convey pleasure to the beholder, but there is a peculiar satisfaction when it presents evidence of careful thought in the choice of its parts, of foreground, of the point of observation, and the point of sight, and it is wonderful what a difference can be made by a little thoughtful discernment in setting our camera so as to bring in an old stump, a jutting rock, or a gracefully branching tree into our picture.

Of genre subjects the Club has had hitherto but few examples—no doubt on account of the difficulty attending their natural presentation. But to the amateur ambitious to excel this only presents an object for attainment.

Subjects in still life often afford the greatest pleasure, but for them the highest technical excellence is necessary, for the humble character of the objects portrayed demand a nicety of arrangement, as well as careful attention to light and shade—all presented with perfection of focus, judgment as to exposure and stop, and excellence in printing and toning.

Let us hope that, in whatever direction we may decide to present our work to the Club, we will all strive to "come out at the top," and so find ourselves affording a goodly measure of pleasure to others, but also deriving profit in the higher attainment toward our idea.

The expenses attending the Club are small, being nothing more than necessary correspondence, the transmission of the pictures, and a few incidental outlays; but it has been found that 50 cents per annum—the contribution hitherto—is insufficient to cover these, and in future the annual dues will be $1, which may be remitted to the secretary on enrollment.

All the old members of the Chautauqua Schools of Photography are reminded that they are eligible for membership in the Exchange Club, and it is hoped that out of the hundreds who have received instruction there are many who still retain their old love for the fascinating art, and who will, for

their own further advancement in it, send in their names.

The next quarterly distribution of pictures will be in November; but it is highly desirable that members should register as early as possible, that ample time may be afforded for careful preparation, and members may receive early intimation of the number of pictures which will be required for distribution.

Applications, with subscription of $1 accompanying, may be sent to the Secretary, Mrs. C. L. Pierce, Elmhurst, Riverside, Conn., or to me, at the address below.

Robert Whittet,
1001 Main Street, Richmond, Va.

TREASURER'S REPORT.

For Year Ending August 15, 1893.

Chautauqua Photographic Exchange Club.

Cash on hand Sept. 1st	$4.52
Dues rec'd from 25 members	12.50
	$17.02
Cash from Secretary	26
Total	$17.28
Amount expended for printing 1,400 blanks	$3.50
Printing circulars	1.50
Stationery	.81
Postals	1.45
Stamps	7.52
100 large envelopes and cards	2.50
	$17.28

The Chautauqua Photographic Exchange Club.

The following amendments to the constitution have been proposed :

1st. It is moved by W. F. G. Geisse, seconded by G. W. Hart, that a circulating album be substituted for an exchange of pictures. For convenience in carrying out the said album, that each contributing member mount his photograph upon a uniform size of card, and after having circulated through the members, the pictures be finally retained by the instructor, and preserved at the headquarters of the Club.

Should any of the members desire to obtain copies of any of the pictures for his own use, he will have liberty to call for such an application through the Secretary within one week after receipt of the circulating album.

2d. It is moved by Mrs. C. L. Pierce, and seconded by Miss Ella White, that the membership dues be hereafter $1 per annum, payable at the beginning of each fiscal year, or on application for admittance.

You are requested to forward your vote and subscription by letter to the Secretary, care of Prof. Charles Ehrmann, 423 Broome Street, New York, on or before November 15th.

After the result of the vote has been ascertained, the President, with the Secretary, will arrange for the first album, the method and order of circulating, transmission, etc., or eventually for the next exchange.

Robert Whittet,
President.

The August exchange is not above mediocrity in the average. It comprises in all 13 contributions from as many members and can be divided into three classes, land and seascapes, portraits and genres, and still life. The latter is represented by one picture only : "Hepaticas" by Miss L. D. Baldwin. Why this talented and clever young lady insists on sending to the Club the least interesting pictures and inferior photographs, is difficult to understand, when she has such a large collection of excellent negatives to select from. Miss B's Negro groups. some of her children's portraits, not to speak of her exquisite dog and her cloud pictures, created universal admiration at the Assembly Grounds. Why not send some of those to the Exchange?

In landscapes Mr. Fitzgerald of California takes the lead. His "Mountain Pasture" is an exceedingly fine photograph, the view artistically selected, sharp, full of detail and with admirable atmospheric effect. Close to him is our new President, Rob. Whittet of Virginia. His picture "At Providence Forge" might have possibly deserved first place, were it not for the strong halation effect plainly visible around the edges of the dark foliage.

We have the means on hand of annihilating "halation" to perfection, and we must again call attention of our students to the ordinary *non-halation* and Carbutt's excellent Columbian anti-halation plate.

Mr. Geisse has a $6\frac{1}{2}$ x $8\frac{1}{2}$ of the famous French war steamer, the "Jean Bart." The same picture has been exhibited at the Assembly Grounds, and favorable mention has been made of it in our Chautauqua letters.

"A view in Rue Rivoli," Paris, by Mrs. Laura H. Mull, is interesting and as good a photograph as a No. 2 Kodak can make. It is encouraging to see how some of our first students still adhere so faithfully to our institution. Mrs. Mull's number is 38, the last student admitted has number 795.

Snow scene by Mr. Howell, under-exposed. A photograph without detail in light or shade.

Carpenter, of Ohio, has the best portrait, a full length picture of young lady. The same picture was also a most attractive part of the Chautauqua exhibition.

A portrait of young girl by Canfield is very pretty.

Mrs. Pierce's "On the Beach at Coney Island," an instantaneous of little girls wading in the surf, is an unusually fine photograph.

Miss Turner has a Chautauqua picture, a scene but rarely photographed, but it is very good. The effects of clouds and water are exceedingly fine. The picture was taken on the north side of the grounds, with Point Chautauqua in the distance.

"In the Woods," by Miss Ella White, seems to imitate the picture, "The old, old Story," recently appearing in this magazine. The composition is attractive, but the plate a trifle under-exposed.

Our Colorado friend, Neal, departs from his usual style of pictures presented to the Club, and sends a group of two men and a donkey. Which one of the three is the most interesting subject is hard to tell. Neal's ccmpanion and rival, Woods, is distinguished by absence. We hope he will return from his trip with many very beautiful negatives.

"Equestrienne," by R. H. Scadin, we place last. His former contributions were always of high order, the present has no merit, excepting the two horses being sharp. There is no motive in the picture, and one of its bad features is the strong halation seaming the foilage.

Chas. Ehrmann,
Instr. C. S. P.

Pictures Received.

No. 281.—A collection of very fine cabinet portraits. They are well posed and lighted, finely retouched, and are indeed of great credit to the operator and the school.

These pictures can rival with any made in our large portrait studio, and we can but express our highest satisfaction with them.

No. 774 has but recently joined the Corresponding Class, but is making rapid strides forward. The latest pictures sent for inspection are views in a cemetery in Rhode Island. They are indeed very good; the fine detail in foliage, and also that of the marble, make the pictures harmonious, much more so in fact than such pictures generally can claim.

No. 607 has sent a collection of seven photographs, too late for the Chautauqua exhibition, intended for originally.

These pictures are exceedingly fine and we will review them as numbered:

1. Snow scene. View of a Massachusetts farm. The snow is full of detail, the dark portions of the picture are not without half-tone, and the bluish-black and cold tone gives the picture the peculiar wintry aspect.

2. General view of village with high mountain in the immediate background. Exceedingly fine picture, sharp detail all over, and well printed.

3. Picture of a dog. Quite good, but the dog is too large for the power of the lens. Making it an inch smaller, the dog and surroundings would have been much better.

4. Interior of church, with floral decorations. A very beautiful picture indeed.

5. Church surrounded by large elm and fir trees. Good as the foregoing.

6. Burial-place of the Stockbridge Indians. Very good indeed. Our fair friend has overtoned this print considerably. That is the only fault we can find with it.

7. A very finely posed and lighted cabinet portrait of lady. The vignetting of it is not good. The aperture of the vignetter should be pear-shaped, and, to show more of the drapery, be a little lower. There is no mask wanted for such pictures. No. 7 is also overtoned and yellowish. Consequently, a warmer tone would enhance the beauty of the picture.

No. 557.—"A Glimpse of the Miami River." A masterpiece of photography. The student has recently made such enormous progress that we consider him in the front ranks of our most successful scholars.

No. 755.—Landscapes and interiors from good negatives, but fearfully over-toned.

No. 780.—A new beginner has sent a variety of pictures, results of his first attempts. They all are much over-exposed. He has, for example, a landscape, exposed with full aperture of lens three seconds and upon a No. 26 Seed plate. Under like condition, and with stop *f*/46, an exposure by hand, as quickly as it can be made, would in all probability be over.

No. 794.—Two 4 x 5's taken by instantaneous exposure. Very encouraging results of a young lady but recently admitted to the corresponding class.

Several "Queries Answered" and "Pictures Received" must stand over till November.

The American Annual of Photography and Photographic Times Almanac for 1894.

(Number Forty-Seven of the Scovill Photographic Series.)

Edited by W. I. LINCOLN ADAMS.

THE COLUMBIAN VOLUME

CONTAINS THE FOLLOWING PICTURES:

A Stuffed Bird (3 colors). Coloritype Company.
The Old Homestead.
A Disastrous Balloon Ascension. By C. P. Goerz.
In Prospect Park, Brooklyn. By W. I. Lincoln Adams.
"Butter is Coming." By Mrs. Mabel O. Wright.
"A Modern Euterpia."
"Give Me the Core." By W. J. Hickmott.
"The Columbus of Photography."
A Glimpse of the World's Fair. By C. D. Arnold.
The New Amphitheatre, Chautauqua.
"A Happy Family." By C. Reid.
"Swans." By C. Reid.
"Photographing the Window Sides of Rooms." By J. R. Smith.
"A Good Use for the Camera." By Miss S. J. Eddy.
"A Reminiscence of Winter."
"Under the Willows."
Athletic Contests at Chautauqua. By a Chautauquan.
Mount Hood. By George M. Weister.
The Great Divide. By W. S. Wood.
A Picnic. By D. W. Carter.
An English Roadside Inn. By Prof. W. Jerome Harrison.
"Spring." By Miss S. J. Eddy.
"Brother and Sister. By Geo. G. Rockwood."
"Field Strawberries." By Emilie V. Clarkson.
Yacht Zampa. By Manhattan Optical Co.

AND THE FOLLOWING ORIGINAL ARTICLES:

A Brace of Suggestions. By G. L. Hurd.
A Camera Stand to Meet any Requirement. By A. S. Murray.
A Compound Negative. By Harry Platt.
A Disastrous Balloon Ascension. By P. C. Goerz.
A Few Simple Hints Culled from Experience. By Rev. F. C. Lambert, M.A.
A Good Use for the Camera. By Sarah J. Eddy.
A Lesson in Bacteriology. By Nelson B. Sizer, M.D.
A New Dodge. By Thos. J. Bray.
A New Field of Work. By Rev. Dwight W. Smith.
A New Idea in the Making of Lantern Slides. By David G. Archibald.
A New Method of Storing Negatives. By E. W. Horne.
A Photographic Hall. By R. E. Berry.
A Plea to Amateurs for Time Exposure, with Factors in Photographic Exposure. By S. Hemingway, M.D.
A Photographic Question. By Mrs. James Osborne Wright.
A Printing Window. By C. R. Arnold.
A Record of Photographic Progress.
A Simple and Effective Pneumatic Shutter. By Horatio Yeates.
A Stereoscopic Division Screen. By H. W. Gould.
A Thorough Print Washer. By E. F. Bacheller.
A Trusty Helper for Special Photo Printing. By O. G. Mason.
Acme Emulsion Paper. By W. H. Gardener.
Aids to Artistic Photography. By John H. Bates.
Amateur Cameras. By J. W. MacMurray, U. S. A.
Amateur Home Portraiture. By J. S. Hodson.
An Exposure Record. By Geo. E. Merry.
Animal Motion in Art. By Val. Starnes.
An Instantaneous Tripod Top. By E. B. Luce.
An Iron Washing Tank. By E. B. Luce.
Apparatus for Making Lantern Slides and for Copying. By R. Eickmeyer, Jr.
"Are You Successful?" By O. M. Pausch.
Artists as Photographic Judges. By Ellerslie Wallace.
As to the Cause of Failure in Preparing Plain Paper. By W. S. Waterbury.
Blue Prints. By Geo. A. Sawyer, U. S. N.
Blurred Prints and Their Cause. By Louis Clarence Bennett.
Brains are an Advantage. By Henry W. Belknap.
Bubbles. By William W. Fox.
Carbon Paper for Amateurs. By Emil Obernetter.
Chalk Plate Engravings for Photographers. By J. Will Barbour.
Collodio-Chloride, Aristo *vs.* Gelatine Printing-Out Paper. By J. A. Lord.
Constitution of, and Relationship Between, Atomic Structure and Developing Power of Some Aromatic Compounds. By A. B. Aubert.
Dark-Room Illumination. By W. H. H. Clarke.
Developing Brief Exposures. By W. J. Stillman.
Developing with Amidol. By C. M. Brockway.
Doubles—How to Make Them. By W. J. Hickmott.
Electric Light for the Dark-Room. By C. A. Smyth.
Expression in Photography. By H. Edwards-Ficken.
Finger Prints. By Francis Galton.
Focusing by Proxy. By Ottomar Jarecki.
Gelatine Printing-Out Paper. By A. Helmold.
Glass Etching. By P. C. Duchochois.
Go Slow. By A. M. Ross.
"Hands Off." By J. F. Ryder.
Hardening Gelatine Negatives. By John R. Clemons.
High Relief Plates Direct in Half-Tone. By Dr. Armand Müller-Jacobs.
Historical Photography. By Julius F. Sachse.
Hobbies. By W. N. Jennings.
How to Best Illuminate Transparent Objects with Light from a Kerosene Lamp, in Photo-Micrography. By A. Clifford Mercer.
How to Make a Pretty Souvenir. By M. S. Turner.
How to Succeed. By W. B. Dimon.
If. By A. J. Whelan.
Inside a Camera. By Charles W. Whittlesey
Lantern Slides. By John Nichol, Ph.D.
Mat-Surface on Gelatino-Chloride Paper. By S. C. Passavant.
Monochrome Oil-Finished Bromides. By L. G. Bigelow.
Notes on Architectural Photography. By J. H. Harvey.
Notes on Cameras with Fixed Focus. By Col. A. Heger.
Notes on Film Hardeners. By Max Madder.
Notes on Photography in Boston in 1839-40. By C. W. Canfield.
Of a Certain Dark-Room. By W. C. Koehnle.
On Enlarging by Artificial Light. By A. R. Dresser.
On Instantaneous Photo-Micrography. By Gottlieb Marktanner-Turneretscher.
On Recording the Position of the Sun when Making an Exposure. By William Rollins.
On the Photographic Search for Asteroids. By Prof. Wm. Harkness, U.S.N.
On Some Uses of Picric Acid in Photography. By Prof. W. K. Burton.
Orthochromatic Plates in Landscape Work. By C. H. Poor.
Paramidophenol and its Derivatives. By Dr. M. Andresen.
Patience *vs.* Alkali. By Frederick A. Jackson.
Photo Enamels. By Louis B. Schram.
Photographers and Society. By J. A. Lord.
Photographic Star-Brightness. By Henry M. Parkhurst.
Photographing Snow Scenes. By W. I. Lincoln Adams.
Photographing the War Ships. By J. J. Higgins, A.M., M.D.
Photographs of the Window Sides of Rooms. By James Reüel Smith.
Photography and Flowers. By George Kennedy.
Photography and School-Room Work. By S. A. Espey.
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Associate Editors:
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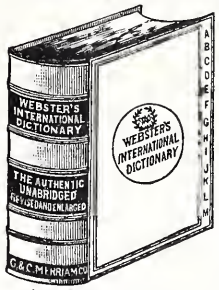
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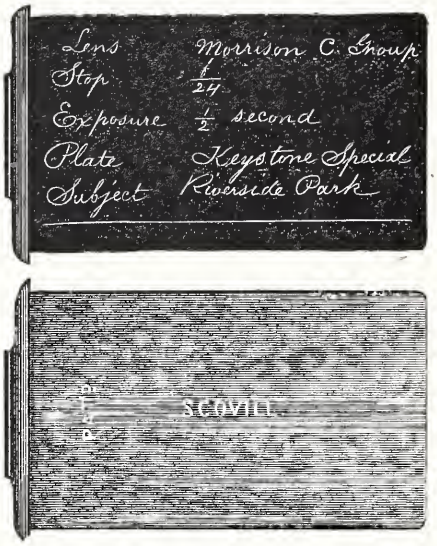
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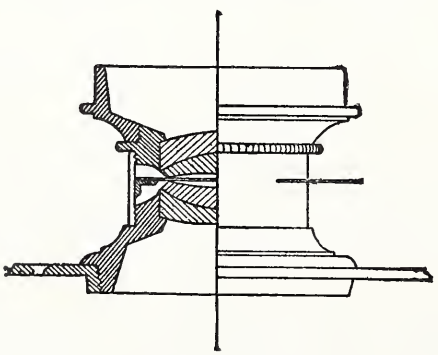
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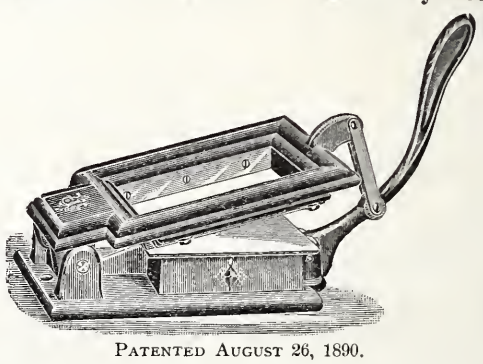
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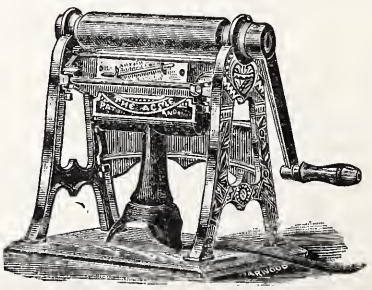


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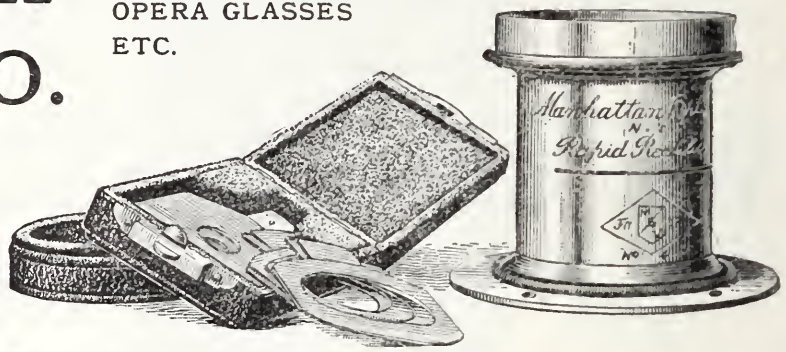
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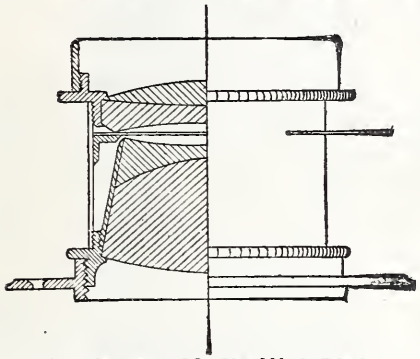
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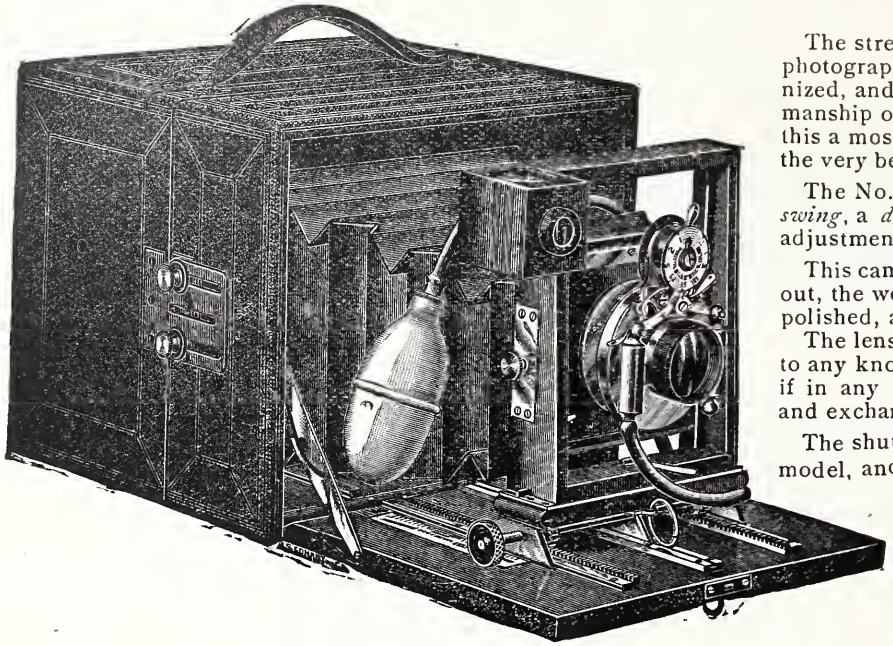
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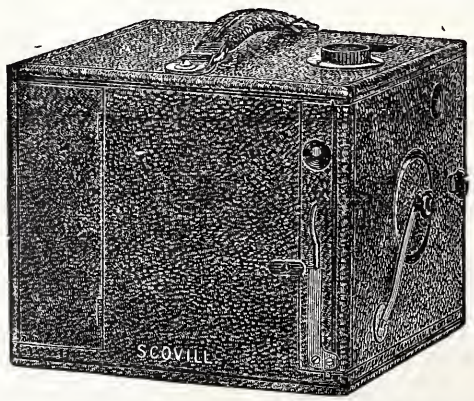
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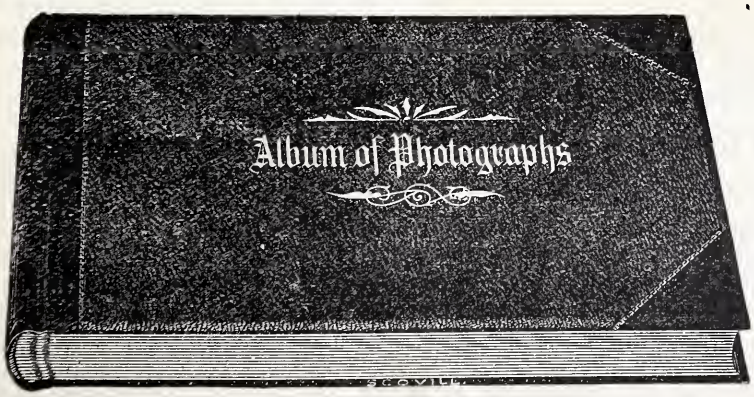
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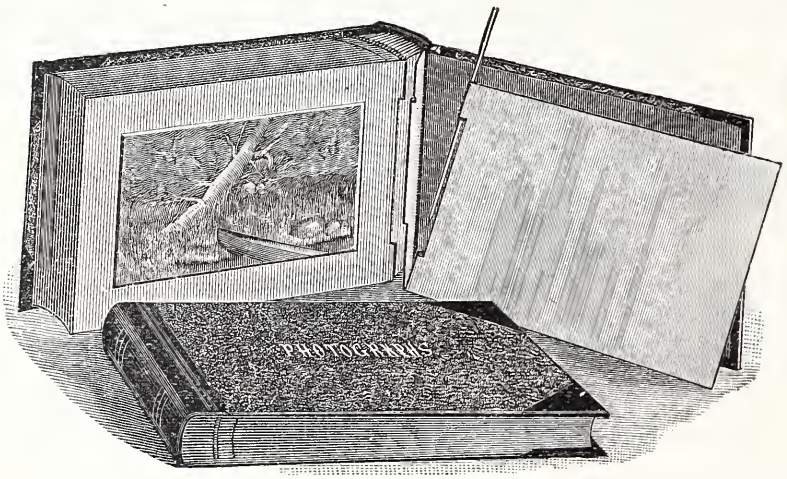
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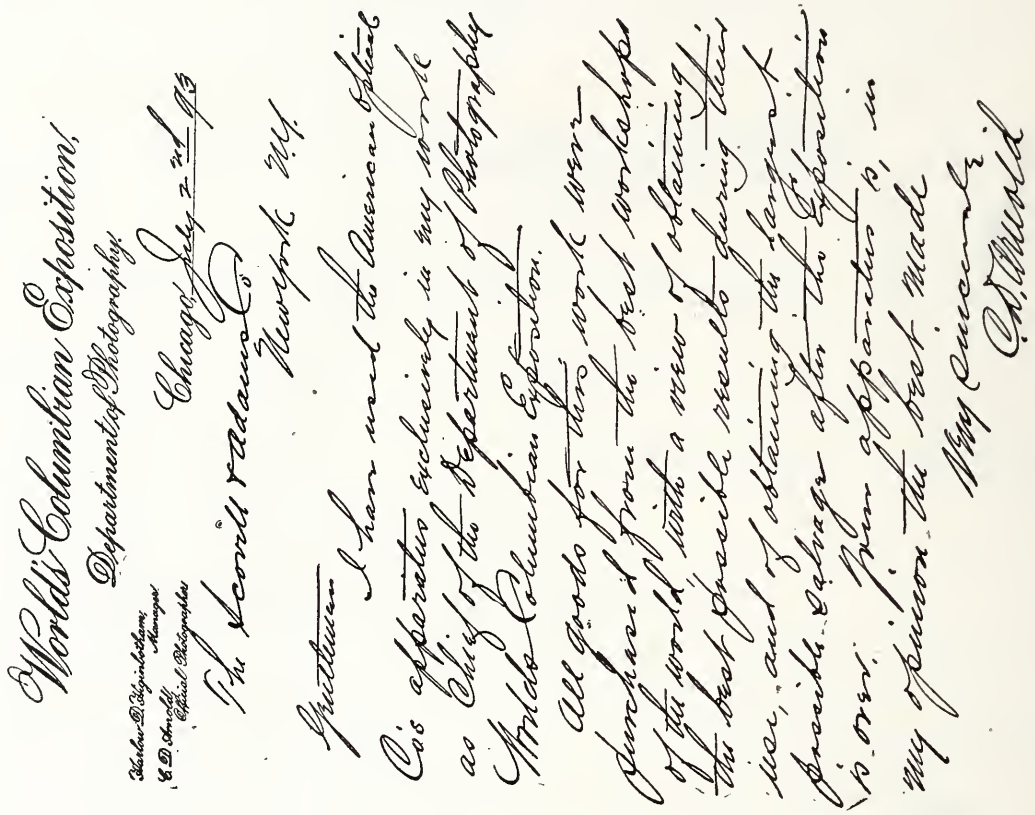
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the best possible results during this
work, and of obtaining the largest
possible value for the Exposition.
It is my opinion that the Solio Apparatus is, in
my opinion, the best made

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C. D. Mundy

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for the
genuine, too,
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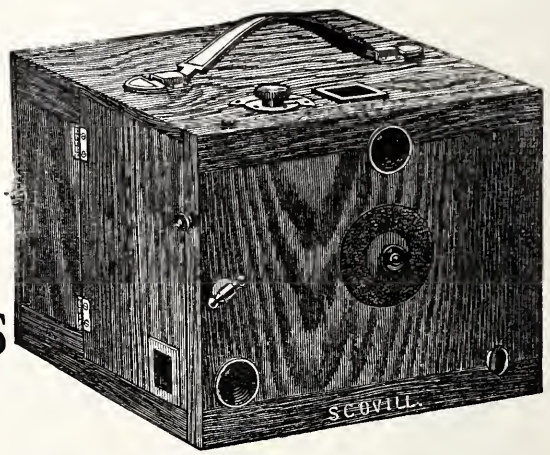
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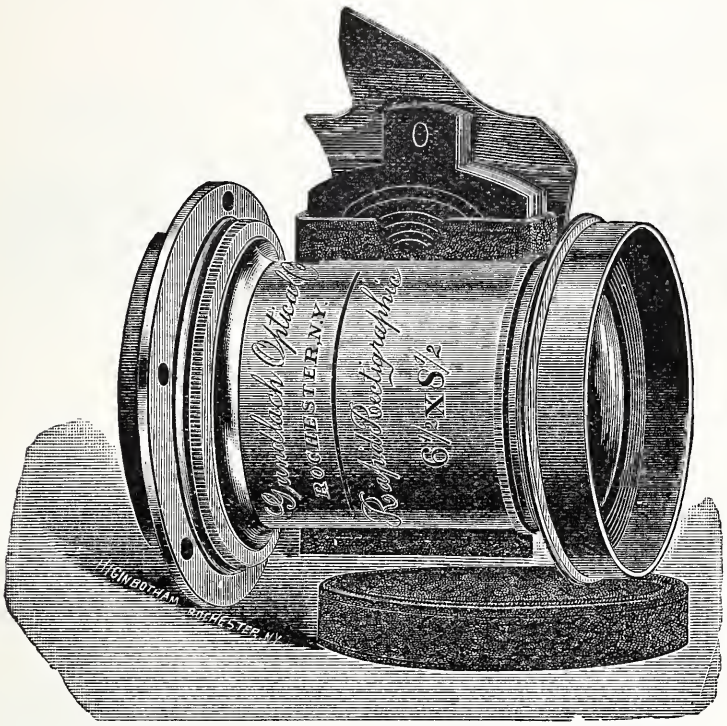
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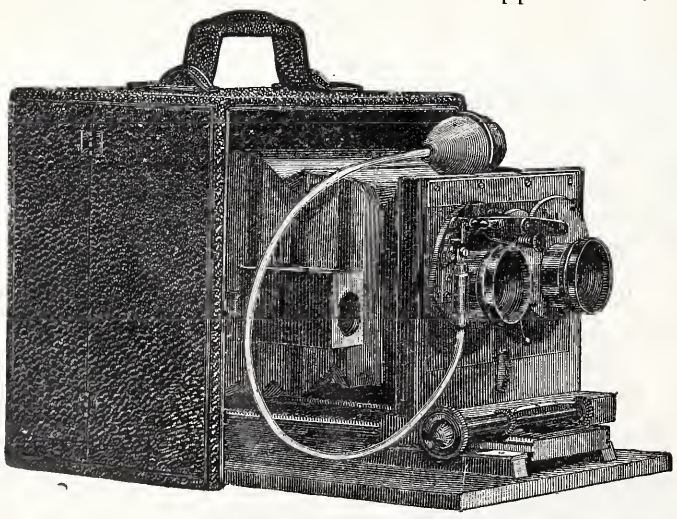
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

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This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

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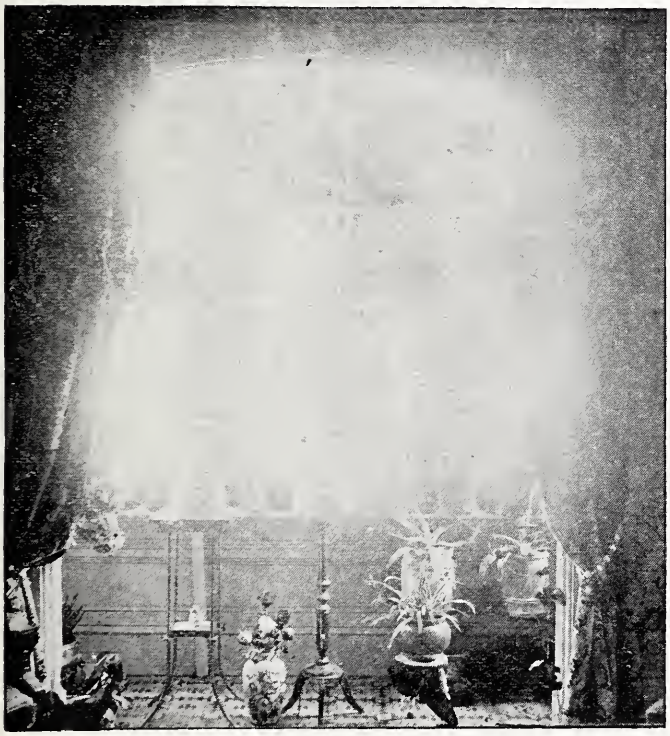
A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

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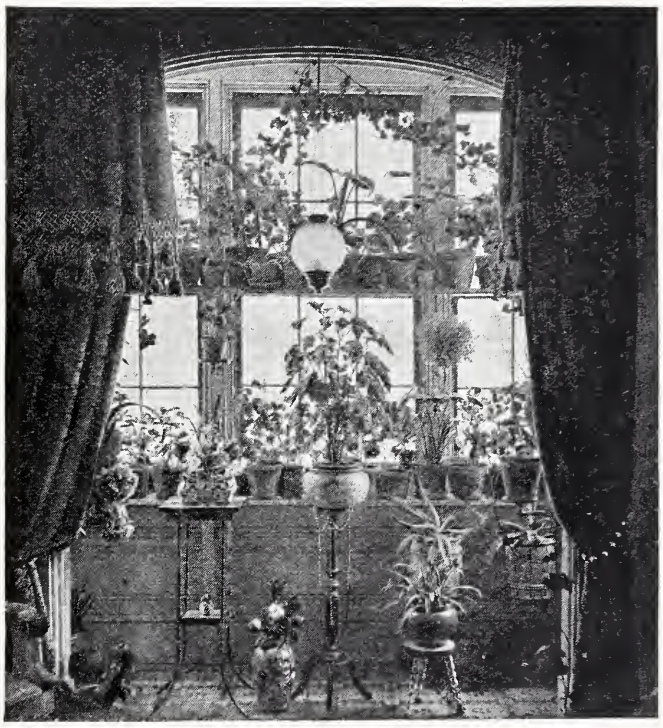
Wuestner's "Imperial Non-Halation" Plates.

LOOK ON

THIS PICTURE and ON THIS!



Reproduced from Negative on ordinary Plate.



Reproduced from Negative on "Imperial Non-Halation" Plate.

Both Negatives Exposed on the same Subject, one immediately after the other.

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Reflections

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. NOVEMBER 24, 1893. No. 636.

REFLECTIONS.

THIS is one of those picturesque bits of nature that the eye of the artist sees and the ordinary photographer passes by, complaining of the want of something to photograph. In the treatment and arrangement of this subject, Mr. F. B. Mitchell has made a picture.

A COMPARATIVE REVIEW OF MODERN DEVELOPERS.

SECOND ARTICLE.

MODERN organic chemistry disclosed a wonderfully rich mine of energetic developers, of which paramidophenol, the basis as well as in combination with acid, must take the foremost rank because of its great energy to resist oxidation, and what was first said of it proved, to all purposes, true. With the same solution many negatives can be developed with equally good qualities, and the solution keeps clear and without coloring to an almost unlimited extent.

Most remarkable to say, para has not gained many admirers, still the few who have adopted it for general work speak of it as giving satisfaction. The reason why para has not come to the front more extensively, is due to its penetrative power in the deepest shadows, which is occasionally instrumental in insuring the brilliancy of the higher lights. The cause of it is its energy and consequently the frequent over-exposures. But para requires a bromide restrainer, and much of it, when a seemingly over-exposed plate may still be made to yield a brilliant but finely detailed negative or one absolutely opaque and absolutely transparent. In cases of feeble negatives hydrochinon now steps forward again with a helping hand. The most beautiful negative we ever have seen, the beau ideal of all photographic plates, were developed with paramidophenol hydrochlorate to secure detail, and finished with hydrochinon to obtain vigor.

Paramidophenol is the mother substance of a series of excellent developers, metol, amidol, etc. It forms salts in combination with acids as well as with alkalies.

Such salts are throughout very soluble in water.

Neutral sulphite or carbonated alkali liberates from these solutions; the base $\overset{OH}{C.H_4NH_2}$ which in proportion to their concentration remains either in solution or separates in little white scales.

Aqueous solutions of the base show, in the presence of a neutral sodium sulphite, a pronounced developing capacity.

Caustic alkali causes, in concentrated solutions, at first a precipitate of this base, but dissolves the same again by a further addition, forming thereby phenolate, *e.g.*, $CaH_4 \overset{ONa}{NH_2}$

The phenolates of paramidophenol are readily soluble in water. They develop in this state so that the presence in the developer of carbonate or caustic alkali is not requisite.

Rodinal, a preparation of paramidophenol, with meta-bi-sulphites and a great excess of caustic alkali has been reckoned among the most energetic developers, but owing to its great alkalinity it is as objectionable for practical use, as the crystallos made of hydrochinon, and for the same reason.

The formulas for paramidophenol, published in journals and hand-books, have all one peculiarity, namely, the enormous amount of sodium sulphite they contain. Para forcibly resists oxydation, pyrogallol requires of sulphite but 5 parts to 1 of pyro, and why some formulas have as much as 20 parts of sulphite to 1 part of paramidophenol is difficult to com-

prehend. In our latest formula these proportions are reduced to 1:3, by which means a more energetic solution is obtainable with the original amount of alkali. The more sulphite that is added the less para is kept in solution, but with our method of reducing the quantity of sulphite, we have been able to obtain a developer as energetic as rodinal without its objectionable features.

For paramidophenol developer, we should not spare restrainer. Small quantities of bromide prevent fogging of the plate, a restraining action is the result of much more of it. Citrates, or biborate of sodium is productive of great intensity, such as wanted for photo mechanical work, and as para never will fog a plate of medium sensitiveness, it is, as far as we now know, the only developer useful in this particular class of work.

Of amidol or diamidophenol so much has been written and said of late, that it appears unnecessary, almost, to repeat what has been said in praise of it, and in outline form only will we recapitulate.

It is a most powerful and energetic developer, however. When amidol is intended to develop the latent image, an exposure less than 33 per cent. is quite ample. Tyros or beginners having experimented with amidol complain bitterly of feeble and monotonous negatives, but they are resulting from over-exposure only, from nothing else. Repeatedly have we shown in these columns how short the time of exposure need be with amidol, but our advice has been appreciated to but little extent.

We will repeat here an incident already mentioned in these columns, but which will illustrate and well explain what we assert. On a late afternoon, on a cloudy and rainy day, attempt was made to reproduce a line engraving upon a Carbutt process plate. Inadvertently the time of exposure given was apparently much over, and to save the plate, if possible, a weak hydrochinone developer was applied to it. In 5, in 6, in 7 minutes no picture appeared, when amidol was applied, after previously well washing of the plate. The result was the picture coming up at once, with every indication of over-exposure.

One of the objections to amidol is its easy decomposition by oxydation from the oxygen of the air, and consequent diminishing of energy.

To prevent this in ordinary practice we resort to an old method, frequently used with pyrogallol, we mean the mustard spoon formula. Make a 10 per cent. solution of Andresen's neutral sodium sulphite, and before going to develop add to each ounce of it a mustard spoonful (3 grains) of amidol. Dilute the solution in the proportion of 1:3 or 1:4 and no better and effective developer can be possibly found.

Small amounts of bromide in the amidol developer prevents fogging, larger amounts are necessary to restrain over-exposure.

An increase of the proportions of sulphite of sodium, provided it be neutral, strengthens the developer, it has been said, and others assert, the same effect is obtained by adding traces of an alkali. We have shown at another place what the action of an alkali may possibly be, and what a part dithionate of sodium when at all present might possibly take, but that amidol, as has been asserted, is a strictly acid developer, we must at least take "cum grano salis."

Metol is a sulphite salt of methyl paramidophenol. It readily dissolves in cold and hot water, but with difficulty in alcohol and ether. Is also sufficiently soluble in water to admit of concentrated stock solutions with admixture of carbonate alkali.

The ready-for-use solutions of metol keep just as well as the corresponding solutions of paramidophenol.

We have had but little experience with metol, but from what we have seen of it, we cannot praise it very much. Metol developed negatives are harsh and glassy, and for that reason the substance may possibly find application in reproducing line drawings and the like.

Glycine dissolves in water but sparingly.

It is used in connection with neutral sodium sulphite and carbonated alkalis and then dissolves speedily in water.

Acids liberate glycine again from its solutions.

Its effects in photography are mostly like those of paramidophenol (Base).

It is highly recommended in combination with potash or soda the same as paramidophenol, and for all such kinds of work where a slow but particularly clear development is desired.

Its ready-for-use solutions possess the same property of permanency as those of corresponding paramidophenol solutions.

Tri-amidophenol or reducin has not yet reached our shores, hence we are unable to report on a developer which, it has been said, surpasses even amidol.

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EDITORIAL NOTES.

In a leader in *Photography*, C. H. B. discusses the permanence of the undeveloped image, and tells us that he has developed plates exposed three years before, and in many cases the negative was the same as would be expected had the development taken place immediately after exposure. Much depends, however, on the quality of the plate; many makes will not keep for half that length of time unexposed without giving considerable fog and other defects. One important point that was noticed, was that in most of the plates tried there were several patches where the image was distinctly weaker than it ought to be, and these occurred in those parts of the film which would dry last after coating. The conclusion arrived at was, that in a thoroughly washed gelatino-bromide emulsion, the latent image is quite permanent, but destruction will take place when minute quantities of soluble salts are, through imperfect washing, allowed to remain in the film. The reason why those parts drying last showed the weak spots more than the remaining part of the plate, he explains by stating that by virtue of capillarity any soluble salts that are left in the gelatino-bromide emulsion will, during the process of drying, tend to concentrate in that part of the film that dries last.

It is rumored that Mr. Frederick E. Ives will make England his permanent residence. We trust there is no foundation for this, for we would certainly have cause to regret the loss of so valuable a worker and scientist, and one who has done so much for this country.

Several attacks having been made, in the English magazines, upon the author of the article on "The Action of a Lens Simply Explained," which appeared in our Convention number, we consider it necessary to state, in justice to Mr. Woodbury, that it was no fault of his that the diagram used for illustration was copied from a pamphlet issued by Messrs. Taylor, Taylor and Hobson, the English lens manufacturers.

The diagram was sent to the artist merely as a guide, with instructions to make one somewhat similar, to illustrate the article as at first written. These instructions were not carried out, and the cut was made the same. Consequently the article was required to be somewhat altered to suit the diagram. Its similarity to the paper of Mr. W. Taylor has thus called forth several unnecessary comments from our contemporaries. We wish to give Mr. W. Taylor all credit as the designer of the diagram in question, and as the originator of that method of describing the condensation of light by a lens.

The Pall Mall Gazette speaking of photographs exposed for sale in store windows asks: "Why is it that a bishop is almost always sandwiched between a burlesque actress in full battle array and a ballet dancer in all the glory of balloon skirts and the inevitable smile? Why does a lady of high degree and of the bluest blood invariably have for her neighbor a low comedian with hat on one side and impossible gloves and shoes? Why does the scientific man rub corners with the latest heroine of a *cause célèbre?* Why are theatrical managers and Irish members jostled together pell-mell, and so on and so on, incongruities multiplied *ad infinitum*."

The same periodical informs us that "one of the queerest crazes of photography is the latest new pose, which is in itself an epitome of the *sans façon* of the age. The newest idea is to get the sitter to stand or sit with her back to the camera, and her head turned slightly over one shoulder; so that the picture comes out with a full and true view of the fair one's back, with her face only visible in faint profile. Original it undoubtedly is, and as such will possibly become the rage; whether it is either artistic or pleasing is quite another matter."

Referring to a curious and interesting lecture on "Living Photographs," reported in another column, *Photography* makes the following amusing remarks: "It seems that Professor Marshall Ward wants photographers to solve for biologists the problem why sunlight kills, or permanently damages, bacteria spores; the heat of the sun does them no mischief. No doubt he can get a fine crop of theories from our ranks; here, for instance, is one to make a start. The bacteria being so small chemical, molecules are a burden to them, and the blue waves of light being of such a period of vibration as to set up a motion of separation between the atoms of each molecule in their bodies, each poor bacterium finds his inside rattling like a bag of marbles, until he finally bursts, explodes, blows up. This is so like Mr. Starnes's photographic theory of the invisible image that we claim no originality. When the light does not act long enough to kill him, it dislocates his knee

joints and takes all the waggle out of his tail, so that he has to go on crutches the rest of his natural life, which is why Professor Ward is able to prove that he has been damaged. Are these low organisms animals or vegetables? Mr. A. Pringle speaks of some of them as non-chlorophyllic vegetables; Dr. Percy Frankland describes them as 'living beings.' When Professor Tyndall showed Professor Huxley some lively micro-organisms flying about like sparks from a squib, the latter, after examination, said that they might be vegetables, and his learned querist responded that he might as well tell him that flocks of sheep were vegetables."

HOW TO MAKE IVORYTYPES.

PRINT upon plain paper (Clemon's preferably) much darker than is usually required. Let the paper be much larger than the dimensions of the picture desired. When fixed, washed, and dried in the usual manner, the print being still damp, glue its edges and transfer it upon a glass plate. When perfectly dry, paint upon it with transparent colors (body colors will never do for an ivorytype). When the coloring is finished, remove the print from the glass by cutting the edges, and cement it upon another glass, face side of the picture down. This is done by a cement made of 6 parts of white virgin wax, 1 part of gum damar, and 1 part of Canada balsam. Heat the glass plate, pour the melted cement upon the paper picture, and by means of squeegee bring it into absolute contact with the glass. You will have to make another print upon plain paper, but not as dark as the one that has been colored. Any corrections to be made in light and shade, or in intensity of color, must be made upon the second print, which is finally laid at a distance of about an eighth of an inch from the colored original. By these means that wonderful plastic effect we see in ivorytype pictures is obtained.

PHOTOGRAPHIC PRINTING PAPERS WITH LIGHT-SENSITIVE IRON SALTS.

(*Continued from page* 660 *and concluded.*)

B.—PLATINUM PRINTING BY DEVELOPMENT.

Paper of this kind is also an article of commerce, but as it is not durable to any great extent, and the method of preparing it quite simple, it is advisable to make it in our own laboratories.

As a support for the picture, stout, photographic paper should be selected, either the Rives or the Steinbach, of which two kinds are in commerce, the rough and grained, or the smooth calendered paper. The paper is first coated with a gelatine or arrowroot stratum to prevent the sensitizer sinking within the mass of the paper. Gelatinized paper produces bluish-black prints, that prepared with arrowroot of a brownish-black tone

To make the arrowroot solution, 10 grammes of the substance are finely powdered and mixed with a little water in a mortar, and then poured gradually and by constant stirring into 800 c.c.m. of boiling water, standing in a pot or other vessel over an alcohol or gas burner. After removal from the fire 200 c.c.m. of alcohol are added to the solution, and well stirred up. The alcohol can be dispensed with, but then instead of 800 c.c.m. of water 1000 c.c.m. must be taken.

This very thin starch paste is now poured into a flat tray and the paper to be prepared immersed and allowed to remain there for three minutes. Air bells formed on the surface of the paper are removed with a small brush, and during the time the sheet remains in the solution it is turned once.

The sheets are hung up in a warm room, dried, and are then ready to be sensitized.

Instead of sizing the paper by immersion, the arrowroot solution can be applied with a brush, but better results are obtained by immersion; the coating is more even and uniform over the whole sheet.

For the sensitizing of the paper is required chloro platinite of potassium, and a solution of ferric oxalate, which is an article of commerce but easily made. All that it is necessary to observe is that it must be of decidedly acid reaction. This ferric oxalate solution is light sensitive, and should be kept in dark glass bottles. A soluting of potassium chlorate is also required.

G. Pizzighelli and Baron von Hübl prescribe the following stock solutions:

A.

Chloroplatinite potassium.....	10 grammes
Distilled water.....	60 c.c.m.

Not sensitive to light.

B.

Distilled water.....	200 c.c.m
Ferric oxalate	40 grammes
Oxalic acid.....	3 grammes

Not to be exposed to light.

C.

Ferric oxalate solution B.....	100 c.c.m
Potassium chlorate solution.....1:20	8 c.c m

Not to be exposed to light.

For denser negatives, and to produce detail,

softness and deep blacks, the following compound is made using a yellow light :

Platinum solution.....	24 c.c.m
Iron solution....	22 c.c.m
Distilled water.....	4 c.c.m

Enough for a sheet 40 x 50 c.c.m.

For weak and feeble negatives and the prints somewhat harsh.

Platinum solution.....	24 c.c.m
Iron solution....	18 c c.m
Ferric chlorate solution.	4 c.c.m
Distilled water.....	4 c.c.m

Enough for 4 sheets 40 x 50 c.c.m.

rapidly and be kept in dry and dark rooms (tin box with chloride of calcium). When damp or moist the paper is not very sensitive, and prints made upon it are feeble and monotonous.

Printing is done exactly as with albumen paper, although much experience is required to know when the exposure to light must be interrupted.

As soon as the picture appears with all details, not intense however, the print is at once removed to the hot developer.

The developer consists of a cold saturated solution of potassium oxalate, slightly acidulated with

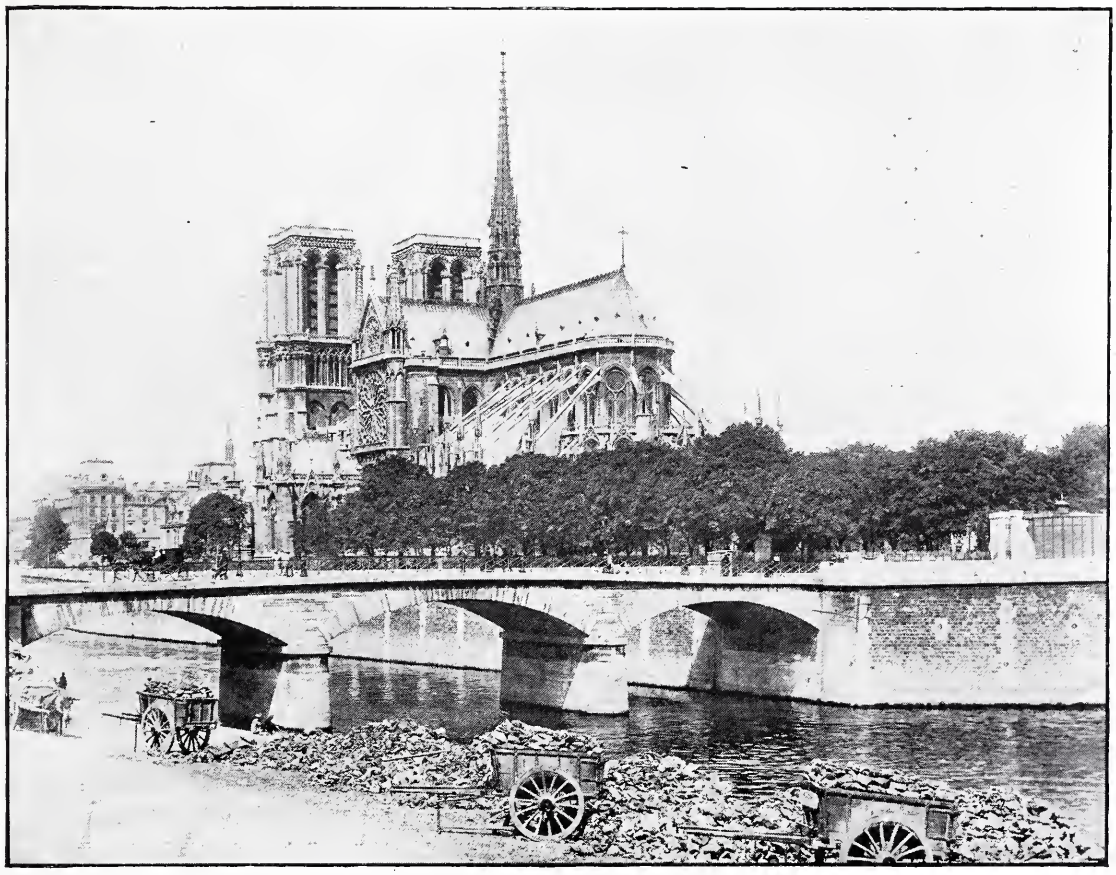


Photo by M. Ch. Berteaux. NOTRE DAME.

For reproductions, line drawings, engravings, or to print brilliant proofs with strong contrasts from feeble negatives take of

Platinum solution.....	24 c.c.m.
Ferric chlorate solution	22 c.c.m.
Water.....	4 c.c.m.

Sufficient for 4 sheets 40 x 50 c.c.m.

For prints of gray color resembling that of lead pencil drawings, this mixture should be diluted with an equal volume of water. Coating the paper is done in the same manner as with the Pizzighelli printing-out paper. The paper should be dried

oxalic acid; it is poured into a flat tray and heated to about 80 or 90 deg. C. The prints, face side down, are pulled through the solution, when the image appears at once with a fine black tone. If not sufficiently exposed the solution may be heated to boiling point, 100 deg. C., but when over-exposed development is controlled by a colder solution.

The developer may be used repeatedly. After development is completed the prints are washed in three changes of diluted hydrochloric acid, 1 : 70, and finally in pure water.

Charles Scolik.

THE FATHERS OF PHOTOGRAPHY.

III.—LOUIS JACQUES MANDÉ DAGUERRE

LOUIS JACQUES MANDÉ DAGUERRE was born at Corneilles, a little village near Paris, in the year 1787. Owing to political disturbances and cataclysms of the great revolution, his education during childhood was almost entirely neglected. He was, however, of an energetic nature, and arriving at a suitable age he chose for himself the profession of a scene painter and rapidly made his way to the front rank, not only by his great power and originality, but by his ingenious mechanical contrivances to produce realistic stage effects.

In 1822 he entered into partnership with the artist Bouton and together they opened a diorama which took the whole of Paris by storm. By an ingenious system of lighting, these huge dioramic pictures were thrown out in relief and represented the landscapes or objects with wonderful fidelity.



THE FATHERS OF PHOTOGRAPHY.
III.—LOUIS JACQUES MANDE DAGUERRE.

In making the sketches from nature for this purpose, Daguerre frequently employed the camera obscura, and his chief idea was centred in the possibility of retaining the wonderful but fleeting images seen with this instrument.

In 1824 he made several attempts to solve a problem looked upon as chimerical by men of science of that day, but there is no authentic proof that he ever accomplished anything.

In 1826 Daguerre was informed by Chevalier, the optician, that a gentleman residing at Châlons had already succeeded in fixing the images of the camera obscura. This gentleman was no other than Niepce, an account of whose life we gave in a previous number. Daguerre immediately placed himself in communication with Niepce and the result was a partnership between the two which lasted until the death of the latter.

Isidore Niepce took the place of his father.

Just previous to Niepce's death, however, Daguerre had by accident made a most wonderful discovery. He had left a spoon on a metal plate treated with iodine, and to his great surprise on lifting the spoon its image was clearly imprinted on the iodized surface.

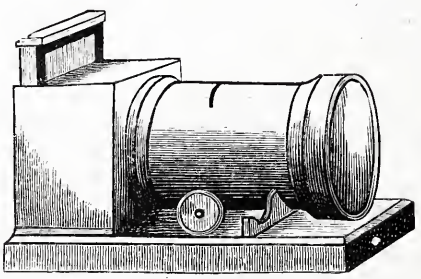
This discovery was the stepping stone to success. By dint of continued labor Daguerre at last perfected his beautiful process of daguerreotype.

In 1837 Daguerre and Isadore Niepce endeavored to start a company to work the process, but the incredulous public did not respond with any degree of enthusiasm, so the matter fell through. Daguerre then decided to cede his invention to the State. It was, however, only through the influence of Arago that Daguerre and Isadore Niepce obtained very modest pensions for life.

Daguerre died in 1851. In the year 1883 a bust of this enthusiastic worker was unveiled at Corneilles, funds for the purpose having been contributed by photographers of the whole world.

Although the Daguerreotype was undoubtedly a wonderful discovery it has long since become an obsolete process. Nor can photographers of the present day consider that they owe much to Daguerre, for the modern processes has, in most cases, been the result of the labors of others, and evolved from the independent discoveries of men like Fox Talbot, Bayard, Reade, Wedgwood, Sir Humphry Davy and others.

Daguerre must, indeed, be considered a fortunate man, for he reaped more honors and material benefits from his accidental discovery than any of the men by whose indefatigable labors photography has been brought to its present state of perfection.



DAGUERRE'S CAMERA.

The Société Français de Photographie is forming a fund for the erection of a monument to Daguerre at Bry-sur-Marne, where he died.

THE ART AND PRACTICE OF COLLODIO-CHLORIDE PRINTING.

(*Continued from page* 661.)

CHAPTER II.

Toning and Fixing.

Gaedicke is of opinion that collodion aristotypes require a much weaker toning bath than albumen or gelatine. It is certainly a fact that if the bath is too strong, a very uneven effect is produced. The manufacturers of the Ilo collodion paper recommend the following :

Toning Bath (ready for immediate use).

Rain or distilled water	128 ounces (1 gallon)
Sulphocyanide ammonia, C. P.	310 grains
Chloride of gold, 15 grains dissolved in water	12 ounces

Pour the gold solution into the sulpho solution, giving you 140 ounces bulk. This bath keeps, and can be used repeatedly by adding gold and sulpho-cyanide ammonia.

Toning will be done in two or three minutes. If a warm tone is desired, prints must be taken out when quite red.

While for Kalona paper, which is also prepared with collodion, the following are given:

No. 1.

Water	48 ounces
Acetate soda	75 grains
Borax	75 grains

Add neutral gold enough to tone.

No. 2.

Water	48 ounces
Phosphate soda	90 grains

Add neutral gold enough to tone.

No. 3.

Water	48 ounces
Tungstate soda	150 grains

Add neutral gold enough to tone.

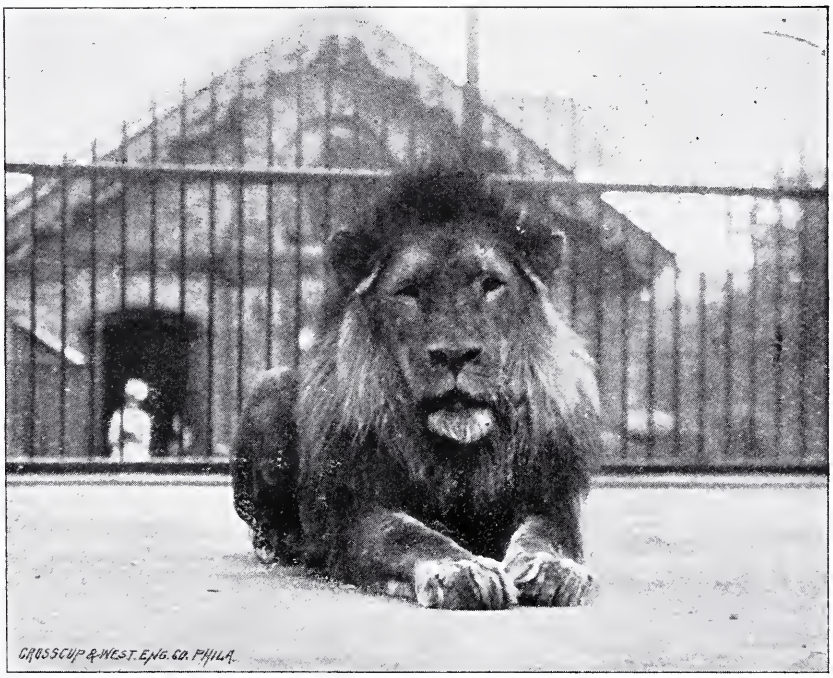


Photo by A. R. Dresser. THE KING OF THE ZOO.

Have plenty of bulk to toning bath, so that each print is singly and thoroughly saturated. Toning baths should be made up at least twenty-four hours before using. Be sure toning bath is slightly alkaline at all times, testing occasionally with litmus paper. The toning bath should not work too quicly, from eight to twelve minutes for each batch of prints. After prints are toned, place in large intermediate water bath before fixing.

Fixing is done in

Hyposulphite of sodium	3 ounces
Water	64 ounces

In this solution the prints must be allowed not less than fifteen minutes.

A good plan, after this treatment, is to rinse them and immerse for five minutes in a fresh fixing bath. This method of double fixation is now very largely adopted, as it ensures the complete elimination of the hyposulphites of silver.

The combined toning and fixing bath can also be used, and is preferred by many on account of its simplicity and regularity. The instructions given with the Ilo paper for this method of treatment are as follows :

Combined Toning and Fixing Solution.

Hot water	½ gallon
Hypo	16 ounces
Sulphocyanide ammonia	2 ounces
Acetate of lead	6 drachms
Nitrate of lead	6 drachms
Citric acid	4 drachms
Powdered alum	4 drachms
*Pure chloride of gold	12 grains

Dissolve thoroughly, then let it stand for twenty-four hours to settle, and use the clear portion.

* The gold may be added as soon as the solution is settled, or just before toning, in proportion to the quantity to be used.

Bath of above proportions will tone and fix 500 to 700 cabinet size prints.

The bath must not be colder than 55 degs. nor warmer than 60 degs. Fahr. Take the temperature with a thermometer just before using, and if warmer than 60 degs., cool by adding a small piece of ice.

The amount of hypo in the toning and fixing bath must be kept up to the original standard, therefore a saturated solution of hypo should always be at hand—1 pound hypo to 2 pounds (1 quart) water. Measure the bath as you put it in your toning dish, so you will know just the quantity you are using. If you are using a quart, for every twenty-five or thirty prints toned and taken from the bath, add 1 ounce of this hypo solution to the portion of the bath you are using. If you are using a pint, add ½ ounce of the solution for every twenty-five or thirty prints toned and taken from the bath; and if you are using a gallon, add 2 ounces of the hypo solution for every twenty-five or thirty prints taken from the bath, etc., etc.

You can use the bath over again as long as it will work and give satisfactory results. When you have finished, simply pour the portion you have been using into a separate vessel, and, to tone next batch of prints, use half old and half new bath.

Dissolve two or three bottles of the chemicals at a time, so you will have 1 or 2 gallons of the solution as stock always on hand. It keeps indefinitely in an open vessel, and, by having a quantity this way, you get much more satisfactory results. If your bath gets muddy, let it stand to settle, and use the clear portion and reclaim the balance by filtering.

CHAPTER III.

MOUNTING AND FINISHING.

ON account of the liability of the collodion film to peel at the edges, the prints should not be trimmed to the sizes required in mounting until after the final washing.

Trimming and mounting may be done as soon as the prints have all the superfluous water removed from them. Any ordinary photographic mountant can be used, as the precautions necessary with gelatine prints to preserve the glossy surface are here dispensed with.



Photo by G. A. Sawyer. FOUR-LEAVED CLOVER.

Spotting defects in the print should be done in the usual manner, using a little albumen mixed with the color.

When the prints are *nearly* dry, they are in the best state for burnishing. The best effects are obtained by using a cold roller first, and, after a few minutes, a hot one, to give the high polish. The burnisher must not be too hot, or the pictures will redden.

Walter E. Woodbury.

FERROTYPE VARNISH.

HAVING received several requests of late for the formula for ferrotype varnish given in the TIMES nearly a year since, I ask the Editor to publish the following for the benefit of all interested in making ferrotypes:

Gasoline, 74 deg.....	10 ounces
Sulphuric ether	2 ounces
Gum damar, finely pulv..	1 ounce

This dries without heat, and is one of the best varnishes known for the purpose. It must not be opened near a light or fire of any kind, as it is very inflammable.

Another, very hard but good:

Bleached shellac, pulverized	1 ounce
Alcohol (Atwood's).....	8 ounces

It is best after pulverizing the shellac to dry it thoroughly by heat before adding it to the alcohol.

It will take some time and several shakings to dissolve the shellac.

J. R. Swain.

"LIVING PHOTOGRAPHS."

PROFESSOR MARSHALL WARD, F.R.S., recently lectured at the Camera Club on the above subject. *Photography's* account of the lecture is as follows:

Professor Marshall Ward at the outset incidentally remarked that the published title of his address had not been of his selection. He had to speak that evening of the action of sunlight on bacteria spores, and how that action was rendered photographically evident. The method adopted was to take a test tube containing a solution of agar-agar gelatine at a temperature of 30 deg. C., and to let fall into it a single drop of distilled water containing the particular class of bacteria to be subjected to experiment; spores are then distributed through the gelatine, and a glass plate is coated with a film thereof. This film is then exposed in part—say by means of a letter cut in a stencil plate—to sunlight or other luminous action, and afterward the bacteria are incubated at a suitable temperature in pure beef broth; the result is that sunlight, if allowed to act long enough, is found to have killed the spores, leaving the plate there transparent, while the part if left in darkness has become opalescent because of the presence of bacteria colonies. These colonies take a few days to grow and produce films of different colors. The speaker, by the aid of the lantern, projected upon the screen some of the films thus obtained, with the images which had been printed on them. He said that some contention has arisen as to whether the light kills the spores, or renders the agar-agar, in which they are imbedded, unfit for their food; he therefore covered some clean glass plates with bacteria spores suspended in distilled water, allowed the plates to dry, and exposed them under letters cut in stencil plates; after the exposure, the agar-agar solution was poured over them in darkness, and incubation was allowed to go on as before; the result was that the spores were found to have been killed where the light had acted, without any gelatine having been present at the time of exposure. He sometimes stripped the gelatine film with its image produced by the method just described from the glass, and was understood to say that he had, in one series of experiments, thus obtained three rough images from one exposed plate—a kind of bacteriological lithographic process.

The lecturer stated that he had made some new discoveries in relation to the action of the electric light on bacteria spores, the particulars of which would have to be first published "in another place," but he would, for the first time, make known some of the results. The electric light acts less powerfully in killing bacteria spores than does sunlight, but it kills them over a more extended length of the spectrum. He here exhibited two bacteria-photographs of the spectrum, one produced by the solar spectrum the other produced by the spectrum of the electric light; the latter was much the longer one, the action extending far into the ultra-violet. The maximum action was in the region of the more refrangible of the blue rays and the less refrangible of the violet rays. In the experiments last mentioned, the optical system of the lantern used had to be of quartz, not of glass, for glass is opaque to the more refrangible of the ultra-violet rays. He considered the arc light, not shielded by glass, to be a good disinfectant. Dr. Oliver Lodge had helped him a great deal in his electric light experiments.

The speaker drew attention to some leaves which had been exposed for a long time to sunlight under stencil plates, and then soaked in absolute alcohol to dissolve out the green coloring matter; they were beautifully white and transparent, and by transmitted light but feeble traces of an image could be seen on each. On dipping them into a weak solution of iodine, however, the particular letter printed on each developed of a full brown color. The reason of this photographic sensitiveness of leaves is that, where the light acts, the green chlorophyll corpuscles are decomposed, and starch is formed and deposited in the leaf; the application of the iodine solution to the leaf reveals the presence of the starch-image, by a brown, and not a blue coloration. Leaves containing tannin, such as oak leaves, will not do for this experiment. The most active rays in producing the image are the orange, and, as in other kinds of photographic printing, the best results are obtained when the length of exposure has been quite right. His best specimen exhibited consisted of a brown letter "H" printed on a pure white leaf, with no coloration of the ground.

Professor Ward concluded by saying that he thought that both photographers and physicists could help biologists a great deal over researches such as those which he had brought under their notice. Why and how does light damage these spores, which are asleep, but not dead? The heat of the sun's rays does not injure them. He possessed evidence that when strong light does not act long enough to kill them it damages them; their afterworking shows that their machinery has been put out of order. Perhaps photographers could solve some of these questions.

After a lively discussion the lecturer and his listeners parted exceeding well pleased with each other.

THIOSINAMINE.

(Photo Correspondenzen.)

THIS recently recommended fixing agent is a colorless salt; it crystallizes in the monoclinic system, easily soluble in alcohol and ether, but sparingly in water. The solution has a neutral reaction and a bitter taste. Thiosinamine was prepared as early as 1834 by Dumas and Pelouze, who studied its properties thoroughly. They produced it through the action of aqueous ammonia upon essential mustard oil.

About forty years ago Will mentioned a great similarity in the reactions of ammonia and thiosinamine, and particularly with regard to its capability of easily dissolving oxide of silver and chloride of silver. With acids, salts and haloids, thiosinamine enters in direct combination.

To pass correct judgment on the value of thiosinamine as a fixing agent, it is absolutely necessary to make quantitative analysis with regard to the capabilities of the substance to dissolve chloride, bromide and iodide of silver, and as no information upon that point was at hand, I have myself investigated the dissolving force of thiosinamine, and have compared it with that of hyposulphite of sodium.

The thiosinamine used consisted of odorless and colorless crystals, and its solution in water presented a clear and neutral liquid. The solution dissolved chloride of silver with great activity; the solubility of bromide of silver is considerably less, and that of iodide of silver but very little. The results of my experiments are expressed in the following tables:

I.

THE SOLUBILITY OF CHLORIDE, BROMIDE AND IODIDE OF SILVER IN THIOSINAMINE AT 20 DEGS. C.

Thiosinamine Solution of Concentration.	100 c.c.m. Dissolved of		
	AgCl.	AgBr.	AgS.
1 : 100	0.40	0.08	0 008
5 : 100	1.90	0.35	0.05
10 : 100	3.90	0.72	0.09

SOLUBILITY OF CHLORIDE, BROMIDE AND IODIDE OF SILVER IN HYPOSULPHITE OF SODIUM AT 20 DEGS. C.

Hyposulphite of Sodium Solution of Concentration.	100 c.c.m. Dissolved of		
	AgCl.	AgBr.	AgS.
1 : 100	0.40	0.35	0.03
5 : 100	2.00	1.90	0.15
10 : 100	4.10	3.50	0.30
15 : 100	5.50	4.20	0.40
20 : 100	6.10	5.80	0.60

It is seen from these tables that the dissolving force of thiosinamine for chloride of silver is the same as that of hyposulphite of sodium for bromide of silver; it is about 5 times less and quite insignificant for iodide of silver. It is remarkable to notice how hyposulphite of sodium is capable of dissolving nearly the same quantity of bromide of silver as of chloride of silver, while thiosinamine dissolves much less bromide than chloride of silver, which proves it to be not a recommendable fixing agent, and not comparable with hypo. The solubility of AgS in hypo is much less than that of AgCl, and AgBr, but its solubility in thiosinamine is too insignificant for practical purposes.

A thiosinamine chloride of silver solution heated to boiling point turns black and turbid, probably from separated silver sulphide.

A mere trace of alkali added to a thiosinamine chloride of silver solution turns black at once, and deposits in time a precipitate of silver sulphide. This trace of alkali acts here the same as a trace of acid acts upon a chloride of silver solution in hyposulphite of sodium. Hence must we deduce that a thiosinamine fixed print not thoroughly washed is just as liable to yellow or to fade as a hyposulphite of soda fixed print, all other conditions being the same. If we add that the price of thiosinamine is at present the same as of nitrate of silver, the practibility of ever using it as a fixing agent is entirely excluded.

G. Valenta.

Notes and News.

Have you ordered extra copies of the Christmas Triple Number yet?

E. L. Wilson, editor and proprietor of *Wilson's Photographic Magazine*, was in New York last week.

An early issue of THE PHOTOGRAPHIC TIMES will be illustrated by a child picture by Rosch, printed on Kloro paper.

The picture of Notre Dame, Paris, is taken from a magnificent platinotype enlargement kindly sent us by M. Ch. Berteaux, the well-known French amateur. The reproduction is the work of the Meriden Gravure Co., and speaks well of the work turned out by this establishment.

Major J. W. MacMurray, the well-known amateur photographer, is at present on recruiting service for the Light Artillery, in St. Louis.

The Kodak has entered a new field. It is now playing a star part in comic opera. Gilbert and Sullivan have introduced it in Utopia, their latest.

W. H. Richardson, the skillful amateur photographer of New York, who has contributed a number of pictures made with his Henry Clay camera to this magazine, has returned from the country.

Lieut. G. A. Sawyer may be congratulated on his success in securing such an excellent photograph of that rare plant, the four-leaved clover. It gives us an excellent idea of the assistance that photography can render to botanists. Lieut. Sawyer is a most skillful amateur photographer.

The King of the Zoo.—We have in this picture a fine study of the monarch of the forests, and one that is deserving of much praise. Any one who has attempted this class of work is aware of the difficulties of securing good pictures. Mr. Dresser has surmounted all these. We shall shortly give a sketch of the life and work of this well-known English amateur photographer, illustrated with several other pictures.

"Charmed."—"I have before me a copy of your photographic magazine, and am charmed with the pictures," writes a lady amateur of Goshen, Conn.

It is stated that essence of terebentine gives a powerful accelerating action to the hydroquinone developer. It has apparently the same effect as a weak solution of hypo with the ferrous oxalate solution.

"'The Photographic Times' will excel even its high standard of beauty and utility in the special Christmas number, which is to contain several photographic illustrations, 50 half-tone cuts, and 36 pages of original articles," writes the *Electric Engineer* of New York City.

Notice.—Next week's number will be one of exceptional interest. It will contain the first of our series of articles on distinguished photographers of to-day. This will be a sketch of the life and work of the distinguished amateur photographer, Alfred Stieglitz, and will include a portrait, five half-tone reproductions of his finest work, and a photogravure from a beautiful photograph entitled, "On Lake Como."

The Societe Francaise de Photographie is forming a fund for the erection of a monument to Daguerre at Bry-sur-Marne, where the distinguished Frenchman died. The church at Bry, it is interesting to remember, is a curious example of Daguerre's ingenuity. The church is too high and too wide in proportion to its length, and, to make it seem longer than it really is, Daguerre painted upon the wall, on each side of the altar and behind it, the representation of the nave of a church. The perspective is managed with such dexterity, and the whole effect is so admirable, that the spectator believes that not only is the altar in the middle of the church, but that behind it commences a new church. "The illusion," says Mr. Balagny, who some time ago sent a description to the French Photographic Society, "is perfect." Daguerre carried out the principle of deceiving the eye in the grounds surrounding the house where he lived at Bry, and made what was really a small place assume the dimensions of a park. This property, which was bought for a religious body, is exceedingly difficult of access to strangers.—*The Photographic News.*

The New York *Commercial Advertiser*, of November 7th, prints the following note in regard to THE PHOTOGRAPHIC TIMES:

That excellent magazine, THE PHOTOGRAPHIC TIMES, is, seemingly, not content to let well enough alone, but is determined, if possible, to leave nothing out of its makeup that shall give vantage ground to competitors. It has made an enlargement and will appear weekly as a sixteen page paper, instead of the twelve pages of text heretofore given. The illustrations, always good, will be continued, from the full page frontispiece to the other half-tones incorporated in the reading matter. A few of the "coming events" in this magazine are worth mentioning: "Stray Papers for Beginners," by Walter E. Woodbury; "The Fathers of Photography," "A Hundred Photographic Experiments," "Distinguished Photographers of To-Day," "Photographic Studios of the World," and many practical papers on dark-room and studio work. The Christmas number promises to be a most elaborate one. It will comprise thirty-six pages of letterpress and over fifty half-tone illustrations. It is to be the greatest thing ever attempted in photographic literature.

How to Hear a Color.—One of the most wonderful discoveries in science that has been made within the last year or two is the fact that a beam of light produces sound. According to Milling, a beam of sunlight is thrown through a lens on a glass vessel that contains lampblack, colored silk or worsted, or other substances. A disk, having slits or openings cut in it, is made to revolve swiftly in this beam of light so as to cut it up, thus making alternate flashes of light and shadow. On putting the ear to the glass vessel, strange sounds are heard so long as the flashing beam is falling on the vessel.

Recently a more wonderful discovery has been made. A beam of sunlight is caused to pass through a prism so as to produce what is called solar spectrum or rainbow. The disk is turned and the colored light of the rainbow is made to break through it. Now place the ear to the vessel containing the silk, wool, or other material. As the colored lights of the spectrum fall upon it sounds will be given by different parts of the spectrum, and there will be silence in other parts. For instance, if the vessel contains red worsted, and the green light flashes upon it, loud sounds will be given. Only feeble sounds will be heard if the red and blue parts of the rainbow fall upon the vessel, and other colors make no sound at all. Green silk gives sound best in red light. Every kind of material gives more or less sound in different colors, and utters no sound in others.

The Editorial Table.

We have received from Gayton A. Douglass, the well-known and popular photographic merchant of Chicago, a magnificent set of World's Fair pictures entitled "A Trip Through the Columbian Exposition with the Camera." These photographs are from negatives made by Mr. Thomas Harrison with a 4 x 5 Henry Clay camera. They are certainly very fine, and reflect credit alike upon the photographer and the apparatus which he used.

Another set of artistic photographs of the World's Fair which comes to us from Mr. Douglass, is entitled "Snap Shots by an Artist," and are also very fine. We do not know by whom the negatives were made, or with what apparatus.

Record of Photographic Patents.

507,529. Picture Exhibitor. Rasmus K. Doe, Duluth, Minn.

507,785. Apparatus for Automatically displaying pictures. George Cox, London, England, and Charles K. Marr, Glasgow, Scotland.

507,790. Camera Shutter. Erskine Decker, Cassopolis, Mich.

507,807. Camera Stand. John H. Green, Ishpeming, Mich.

508,204. Photographic Plate Holder. Edgar B. Bullard, Wheeling, W. Virginia.

508,319. Tripod Head. John F. Joardson, Boston, Mass.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious. The possession of a PHOTOGRAPHIC TIMES Medal will, therefore, be a guarantee of high merit.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Any photographic process may be employed.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

Queries and Answers.

165 P. T.—Can you inform me what has become of "The International Annual of Photography" for 1893? Volume V. is dated 1892, while the volume which follows, VI., is for 1894. Where is the volume for 1893?

165 *Answer.*—We do not know. Inquire of the publishers.

166 A. B. N.—What would be the effect if caustic ammonia or carbonate of ammonium were substituted for soda or potash in the hydrochinone developer?

166 *Answer.*—Green fog, almost invariably

167 SEE.—If a Waterbury B lens stop *f*/35 requires an exposure of one second, what time would be necessary with a Gundlach No. 2 stop *f*/30.5, all other conditions the same?

167 *Answer.*—Less than a second. Set a Kazzoo shutter for time exposure, and open and shut as quickly as possible.

168 DELAWARE.—Last evening a party in church wished a flash-light picture of the bride and companions. The church is a small one, some 50 x 75 to 80 feet. I planted my Henry Clay and tripod in the middle aisle, 25 feet from the chancel. Fearing not enough light I used two cartridges simultaneously. On trying to develop the plate (as I do all instantaneous exposures), the only thing that will show is numerous black dots showing shirt fronts and the bare outlines of the figures.

168 *Answer.*—The want of success with the Scovill (?) magnesium cartridges is caused evidently by a paucity of powder.

The Scovill cartridges were in different sizes, containing respectively 20, 40, 60 and 80 grains of the powder. The quantity of powder required increases as the squares of the distance from the object, and proportionately so with the diameter of the stop. As you do not state what size diaphragm and how much powder by weight has been used, it is impossible what quantity would have been necessary in your case. But you can find out by experiment. Pose your camera 10 feet from the object, use stop *f*/8 of the Henry Clay and one cartridge, whatever size it may be. From the result you will be able to deduce how much powder would have been necessary.

With a 12-inch focus lens, stop *f*/15.5, distance 18 feet, Carbutt 27 plate, and amidol developer, we find 120 grains of powder to be ample.

169 PRINTER.—In olden times we used chloride of silver collodion for the making of opals or porcelain pictures. There was no difficulty in coating plates with collodion, but to coat large-sized papers is quite another thing, and I find it almost impossible to spread the emulsion evenly. I have used Liesegang's "Giessrahmen," but they will not do for large sheets.

169 *Answer.*—The difficulty is only in the larger quantity of collodion handled, or the proportions of alcohol and ether in it. In high temperature make it 2 : 1, in winter time take equal parts. The most convenient way to coat paper 25 x 30 inches we found to be is to fasten the paper previously moistened upon an ordinary stretcher; when dry the paper will be as tight as a drum head, and can be coated with collodion as easily and uniformly as a glass plate.

You are seemingly an old collodion man and know how to do it.

CHAUTAUQUA DEPARTMENT

OF THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

NOVEMBER, 1893.

WE are pleased to be able to show our students samples of photo-mechanical work, half-tone engravings made by a member of the Corresponding Class, Mr. H. Haynes, of Montreal. Mr. Haynes is to every intent and purpose auto-didactic; by reading and diligently experimenting he has been enabled to produce these results, of which we should all be proud.



The original photographs were made upon Stanley plates, and with a *Henry Clay* camera. The reproductions were developed with iron, cut with cyanide potassium, intensified with bromide of copper and a 10 per cent. solution of nitrate of silver. When the plate was dry I coated it with rubber solution, he says, dried the plate, covered it with stripping collodion, turned the film, placed it in a pressure frame with a sensitized zinc plate exposed, rolled up, washed, dusted up, burnt in and etched with 1:64 C. P. nitric acid in a rocker.

The screens used were Wolfe's, of Dayton, Ohio. Very well done.



NOTICES TO STUDENTS.

Inquiries in regard to prefixes of chemical names used in photography have been made here and there.

We will explain some of them.

Pyro, from the Greek word *Pyr*, fire, because pyrogallic acid is produced from gallic acid by dry distillation, or sublimation, by heat.

Per, as in permanganate, means through the agency of, in a state higher than usual. Per chloride, for example.

Hyper denotes something over or beyond, as in *hyper oxide*, an oxide containing an excess of oxygen.

Sub, subordinate, denoting *under* or *below*. For instance, in sub-chloride, a haloid containing less chlorine than the radical is supposed to be capable of to combine with under ordinary circumstances.

Ortho, correct.

Peri, all around, as in periscope, intended to convey the idea ;—a lens named thus is productive of a sharp picture all over the space covered.

A, or the depriving A, the *alpha privativum* of the Greeks, means *not*. As, for example, in a-chromatic—without color, or in a-planatic—not erring.

Hypo, less than ; for example, in hyposulphurous acid is less oxygen than in sulphurous, or less oxygen in hyposulphite of sodium than in sulphite. Another example is hypochlorous or hypochlorites, like hypochlorite of zinc, as in Flandreau's hypo eliminator, in Labarrague's solution or eau de javelle, where the zinc, sodium or potassium is united with hyposulphurous acid.

"American Annual of Photography," for 1894, is nearly completed; will be out in advance of any other photographic year book in this or any other country, and contains a rich mine of information and a large collection of fine photo-mechanical and photo-chemical reproductions. Our school is, we are happy to say, better represented in the '94 volume than in any of its predecessors.

The Assembly grounds, owing to very beautiful, fine and warm autumn weather, are yet visited by many, enjoying the picturesque scenery of the like. Preparations for the season of 1894 have begun to be made, and the School of Photography will be on the alert as usual.

Examination papers for the subordinate classes of 1892–'93 will be presented to the respective students in December.

Many students, graduates of this and previous years, are anxious to remain in communication with the instructor. They are entirely welcome to do so, but, let us ask, were it not better for them to join the *Advanced Class?*

I want to tell my dear scholars of a couple or so of incidents, as they frequently come before me. They will enjoy reading them as much as they were interesting to me. Some fellow down East, not able to purchase The Photographic Times, applied for information on amidol, etc., dwelling particularly on the formula published by Hauff, and that of my great friend Vogel. After telling him conscientiously and candidly the results of my own experiments, and the formula I have found to be the best, and which is successfully used by thousands of excellent photographers, my little Yankee became wrathy and wrote:

"Who are you that I should accept *your* advice above all others?"

If he did not know who I am he should have inquired before writing, and if he did not have some idea of trying my formula, it is a pity he wrote to me at all.

An amateur down South in one of the cotton States, who is continually troubled with unfixed prints and bad tones, was shown photographs printed on Three Crown Paper. He liked them much, ordered a dozen sheets, cut them up to sizes convenient to him, and commenced to print. When after a few minutes' exposure he tried to examine the progress of printing, he found the paper in the same condition as when put into the frame. "That paper may be very good, but it works awfully slow," he probably said. Exposed again and again, but no picture became visible.

The natural consequence of all that is, of course, a letter written in not very pleasing terms, condemning the paper experimented with.

Had our friend South been a member of the Chautauqua School, he would have read Lesson X. and thus saved himself all that bother.

Another very fine young man, otherwise, inquired how to print colors by contact, and when the negative has been blocked out. He wanted to print the grass green, and the brick house red with blue curtains behind the windows.

O ! shades of Rev. Mr. Hill.

A photographer of one of our larger Atlantic cities, not quite a thousand miles from New York, was told to try amidol, and the *Hauff* cartridges were especially recommended to him. After making the experiment, the verdict pronounced was "N. G."—the reason why, because the septum dividing amidol from the other ingredients had not been removed, and our friend had developed with pure amidol only.

"Haec fabula docet."

Read The Photographic Times.

Queries Answered.

No. 555.—1. I cannot get chloride of silver at our local chemists. Will you kindly tell me how to prepare it? I want it for your combined fixing and toning bath.

2. Have tried amidol. My negatives came out very feeble and monotonous, and in some instances the character of the negative was decidedly positive, the sky transparent, the landscape opaque.

3. My amidol solution turned red shortly after preparing it.

4. I have hitherto trimmed my prints with the

scissors, but never could get perfectly straight edges. What trimmer do you recommend?

5. Is Omega paper the best in the market, or can you recommend something better?

Answer.—1. It is quite easy to make chloride of silver. Sixty grains of nitrate of silver yield enough of chloride to add to 64 ounces of our toning bath. Dissolve the nitrate in, say, 2 ounces of water, and in another vessel dissolve about a teaspoonful of common salt. Drop the salt solution in that of the silver, when a white flocculent precipitate will be separated and sink down to the bottom. This is chloride of silver. Allow it to settle, stir up with water, settle again and repeat the operation three or four times. Finally dissolve in the hypo-alum solution.

2. The same old complaint as ever. Your plates were much over-exposed. Remember, when pyro developer requires an exposure of 3 seconds, one is ample when amidol is to be employed. Excessive over-exposures tend with all developers to what is known as *reversal of the image*, and that is so fully pronounced in your case.

3. We recommend to make a 10 per cent. solution of Andresen's neutral sodium sulphite; add to 1 ounce of it 3 grains of amidol (a mustard spoonful), and dilute with 3 to 4 volumes of water. The solution will turn red in course of time. This is the most economical way of making amidol developer.

The easy and rapid oxidation of amidol is its only vulnerable point.

4. *Robinson's* trimmer is what your lessons prescribe. We use a sharp penknife with equal success.

5. *Omega* is evidently a very excellent paper. If there is any trouble with it, try the *Kloro*, which is very highly spoken of.

No. 639.—I want a book on Photographic Chemistry; am in doubt which to take,—*Meldola*, *Hardwich* or *Harrison*,—and call on you for advice.

Answer.—Harrison, by all means; it is a book answering perfectly well to the wants of our students.

No. 337.—What is the cause of these round little spots on the prints I have sent to you? Sometimes I get them, sometimes not.

Answer.—Air bells. Keep the prints moving when in the toning bath and brush them with your fingers.

No. 794 finds it almost too expensive to buy the combined fixing and toning bath ready made, and asks for a good formula easily to be prepared.

Answer.—Take the *Kloro* formula on page 510, PHOTOGRAPHIC TIMES, but be sure to take the double fused acetate of sodium.

No. 799.—How can I count seconds correctly without looking at clock or watch?

Answer.—Educate your mind to do so by means of a pendulum. Take a metallic object, say a musket ball, pierce it, draw a string through it and hang up, so that the distance from the point of suspension to the centre of the weight is 1 meter or nearly $39\frac{2}{3}$ inches. Such a pendulum vibrates in seconds in our latitude almost mathematically correct.

No. 321.—Do you wish me to use a particular paper, and a particular toning and fixing bath, combined or in separate solution?

Answer.—We do not prescribe or commend; use the paper that gives you the best results; the Bradfisch or the Omega with our own combined bath gives excellent results; the *Kloro* with its own bath and method we like exceedingly well.

No. 794.—I calculated the focal values of the stops of my lens according to your direction and found them to be $\frac{f}{32\ 24\ 16\ 10}$. Do you not think a smaller stop than $f/32$ would give still sharper pictures?

Answer.—Yes, but all perspective and atmospheric effect would be entirely lost. If a lens of your kind does not give a sharp picture with $f/32$ or thereabout it is not good. Yours does very well.

No. 505 wants to put a better lens into his hand camera.

Answer.—Let us know what kind of a lens you have, and find out how long the bellows draw out; then we will endeavor to advise you.

No. 676.—What is the function of magnesium nitrate in the silver bath for albumen paper?

Answer.—It changes the color of the untoned print to some extent, but has no influence upon the gold tone.

No. 493.—Can you tell me where I might find a table on "parts" of weight and measure?

Answer.—It is not necessary to publish any table of parts by weight. In fact every table of weights is a table of parts by weight. "Parts" is a general term, for which you can substitute any denomination or arbitrary weight you desire. Whatever you take for the unit in this method is immaterial, provided that every ingredient in the formula is weighed with the same unit or multiples of it. Thus you can employ an ounce, grain, ton, or any other weight for the unit. The U. S. Pharmacopœia of 1880 employed this method for both solids and liquids, but, on account of the dissatisfaction with the method of weighing liquids rather than measuring them, it has adopted in the present edition weight for solids, measure for liquids, using

the metric system entirely.—*Answered from the Pharmaceutical Era.*

No. 780.—What is S. P. C. retouching fluid made of, and what is its price?

Answer.—It is a solution of gum damar and elemi in rectified spirits of turpentine. It is sold for 25 cents per two-ounce bottle.

No. 37.—What is the meaning of the words chlorine, iodine and bromine?

Answer.—These words are all derived from the Greek.

Chlorine means greenish yellow, the color of sprouting plants.

Iodine refers to the color of the vapors emanating from the substance, *violet.*

Bromos in Greek means *stench*, because of the very objectionable odor of the elementary substance. For further information we refer to Harrison's Photographic Chemistry.

PICTURES RECEIVED.

No. 780 sends a number of Cabinet portraits. They show a decided progress since his last communication. Still the positions are not artistic; there are too many accessories, and they show in their arrangement the work of the beginner. But we feel very much encouraged with these pictures, for they testify to the diligence and attention of the operator.

Nos. 13 and 18 are the best from a technical point of view. No. 18 is well posed, No. 13 badly. The white curtains are horrid, and the mat in imitation of grass is out of place in a salon or parlor. No. 14, a family group, is much over-exposed. A shorter time of exposure might have possibly given the chance to get sharp half of the many children.

No. 15 is a well-lighted and posed head of lady. The vignetting is done very poorly. Such a dark ground requires the vignette to be much further from the negative than a light or white background.

No. 801, one of the most diligent and successful students, has gone into portraiture and sends three specimens. The light used is that of one window of an ordinary room. No. 1, Little Boy, three-quarter figure standing. Position stiff and unnatural. Lighting good, under exposed negative. The zigzag vignetting is horrid. Pictures of that kind are better printed with full background. No. 2 is better in general, but to pose the child on a piano stool makes it look like a captive balloon. Lighting good. No. 3, Group of Three. Very fine. There is a motive in that picture and harmony prevails.

No 578.—Among the many pictures of warships taken during the last year, those before us deserve most favorable mention. They are nice, clean cut, well printed, of good tone. We wish the student to compete for the premiums offered by THE PHOTOGRAPHIC TIMES.

No. 776.—We were most agreeably disappointed when receiving the first specimens of work by our fair lady scholar.

"The Old Bor" is excellent in artistic as well as in technical treatment, a picture with motive, well-lighted, and with excellent atmospheric effect.

"An Open Fire Place" is rather harsh, and the tree on the left side of the picture interferes much with the general effect. It is quite easy to move your camera to either side to avoid such incongruities.

"Two Little Nig's" of the Virginia variety is an exceedingly well-composed picture, but the photograph is very poor. Your colored brethren and sisters should never be photographed in direct sunlight. Diffused light and comparatively long exposure will give justice to their admirable complexion. Miss Baldwin, of Roanoke, Va., is a master in that sort of work. Ask her to assist you.

"Doctoring Poor Pussy" is as poor a picture as pussy herself. No effect, harsh, and without any artistic claim.

No. 774 has taken a fancy to photograph monuments, cemetery scenes, and so forth, and has had excellent results in that peculiar class of work. His judging of the time of exposure between marble, granite or bronze is, however, not always correct and leaves much to wish for.

No. 763 sends several very fine California views, more to have tone and printing than the quality of the negative subject to our criticism. The negatives being all equally good, we will speak of the prints as is desired.

Of No. 1 there are two prints, one on self-prepared albumen paper, the other on American aristo.

The albumen paper print is good, the other not toned enough. Drop the American aristo and continue to print on albumen, is our advice.

Two prints of No. 2 on solio paper. The one toned in separate solutions is the better of the two.

No. 5 same as No. 1.

No. 6, the best tone on emulsion paper.

No. 7, on albumen paper, the best toned print in the collection.

No. 693. Portraits of some of Virginia's colored 400. The fair lady's negro portraits and groups are very attractive indeed.

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This increasingly popular Year Book,

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As it has been called, is now in press and will be ready on or before December first. The following enterprising dealers in photographic goods have already placed their orders for "The American Annual of Photography and Photographic Times Almanac for 1894." It can, therefore, be obtained of any of these dealers on the date of publication:

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E. W. Newcomb & Co., 69 W. 36th Street, New York.
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Obrig Camera Co., 163 Broadway, New York.
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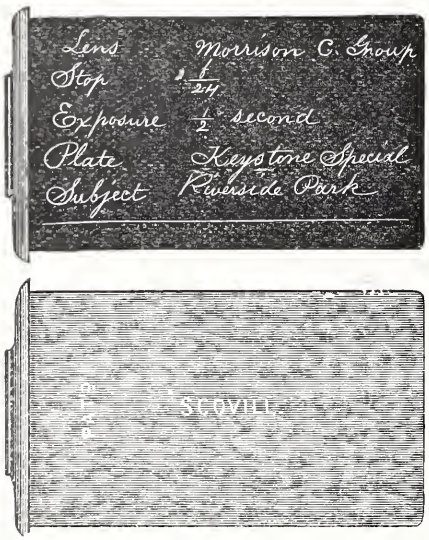
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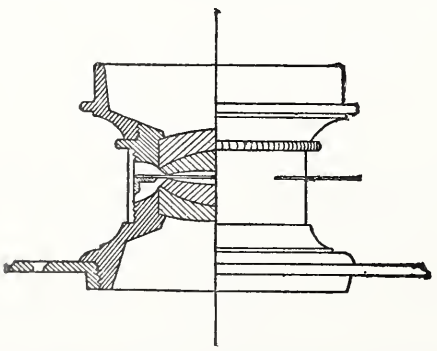
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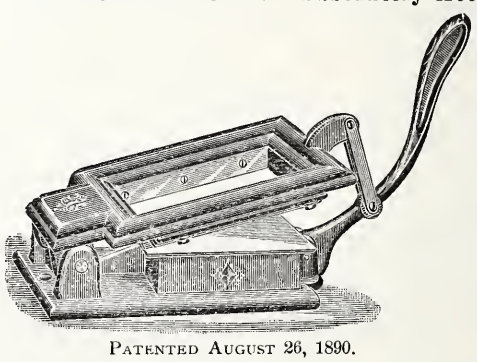
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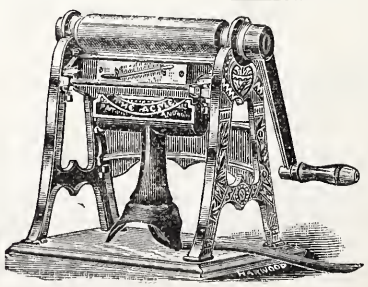
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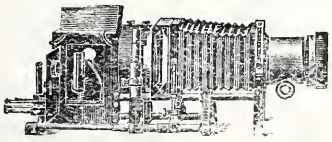
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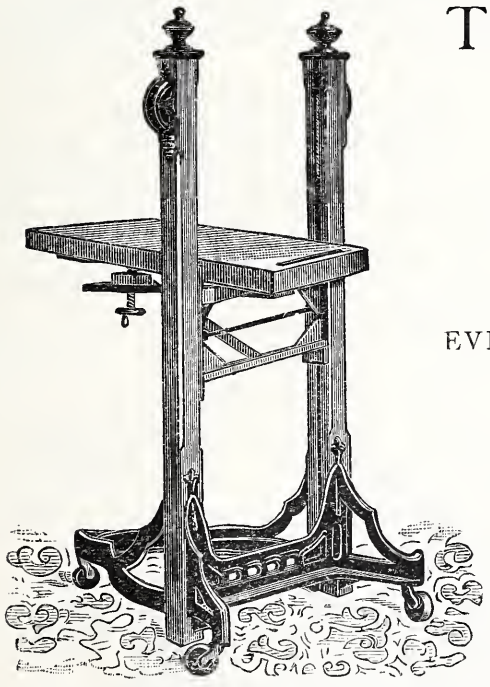
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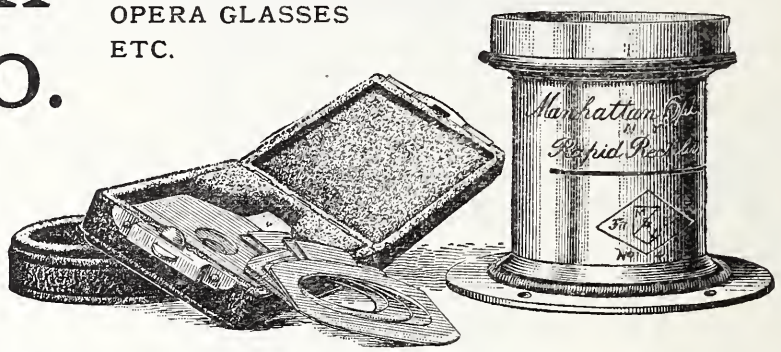
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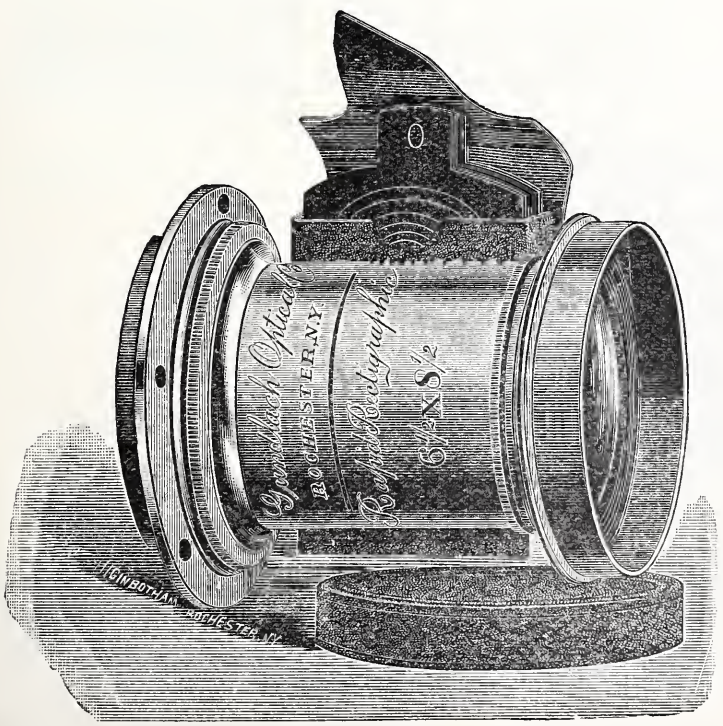


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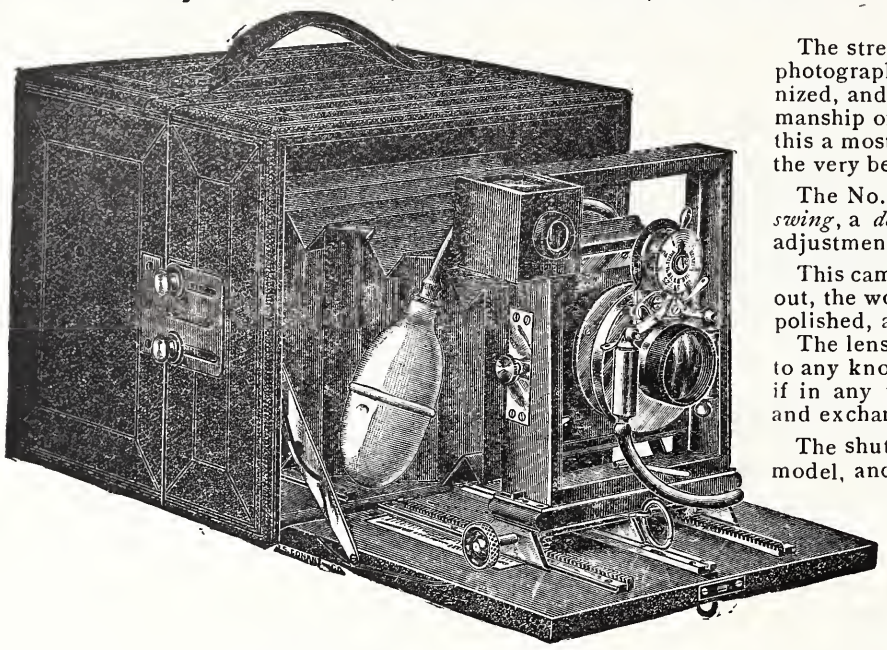
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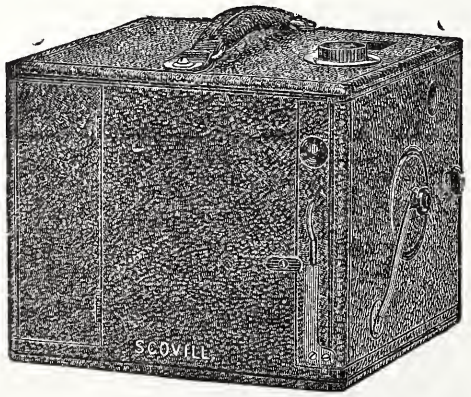
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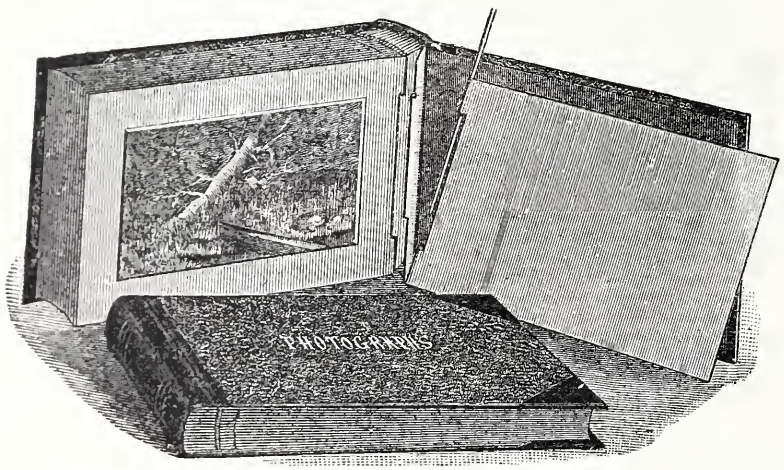
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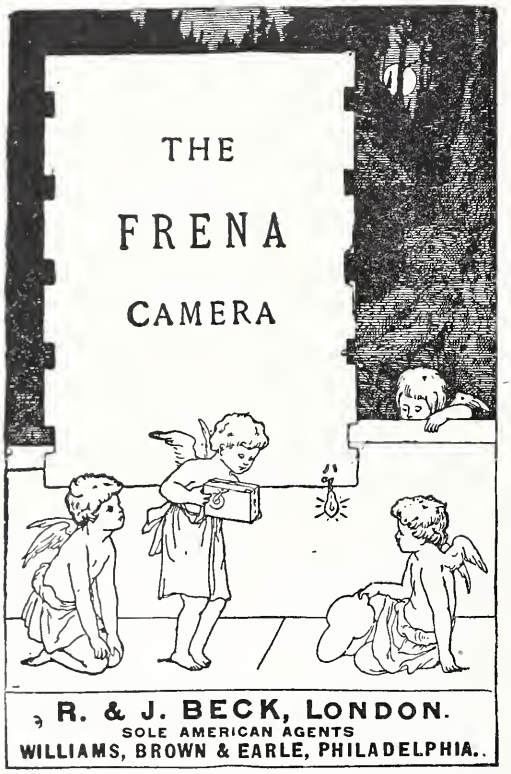
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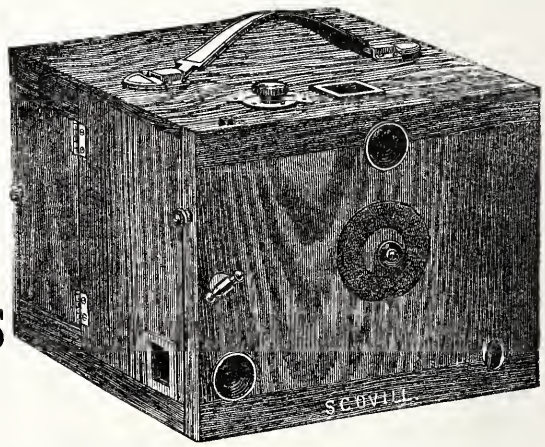
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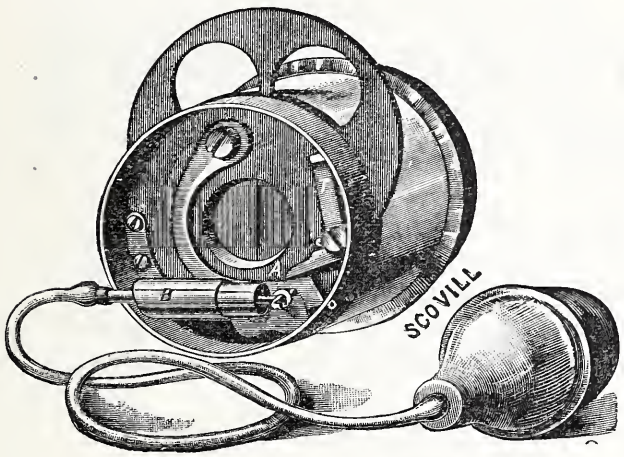
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Gentlemen: I have used the American Optical Co's operator exclusively in my work as Chief of the Department of Photography at the World's Columbian Exposition.

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The Photographic Appetite increases by what it feeds on. The beginner is usually content to start with a modest outfit, but as interest grows the hunger for more artistic results calls for better facilities so that the apparatus must constantly be of a more improved pattern and contain all the latest fixings, till finally the question of improvement is entirely one of the value of the lens.

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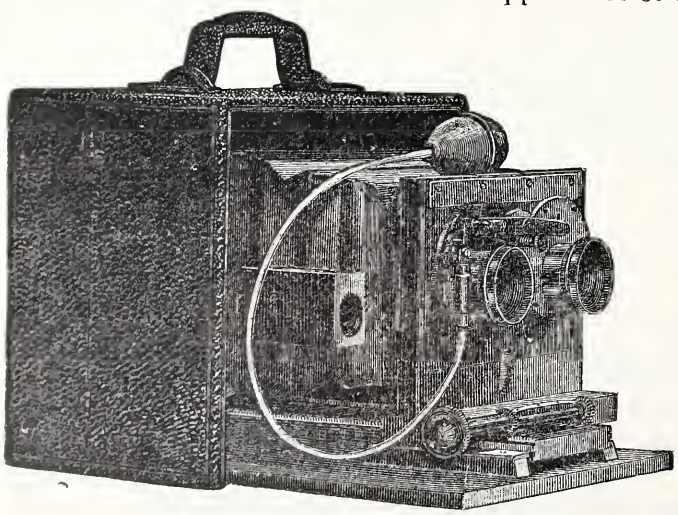
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, ... $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

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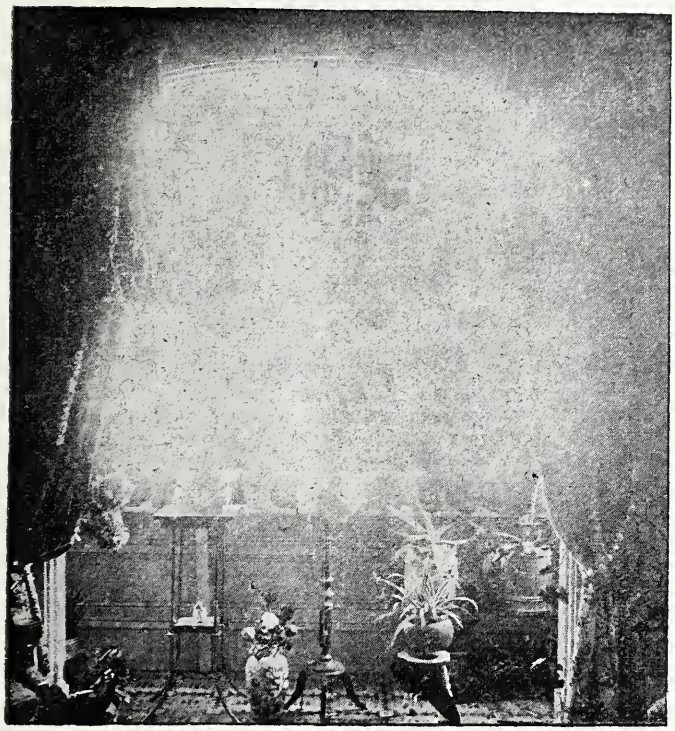
A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

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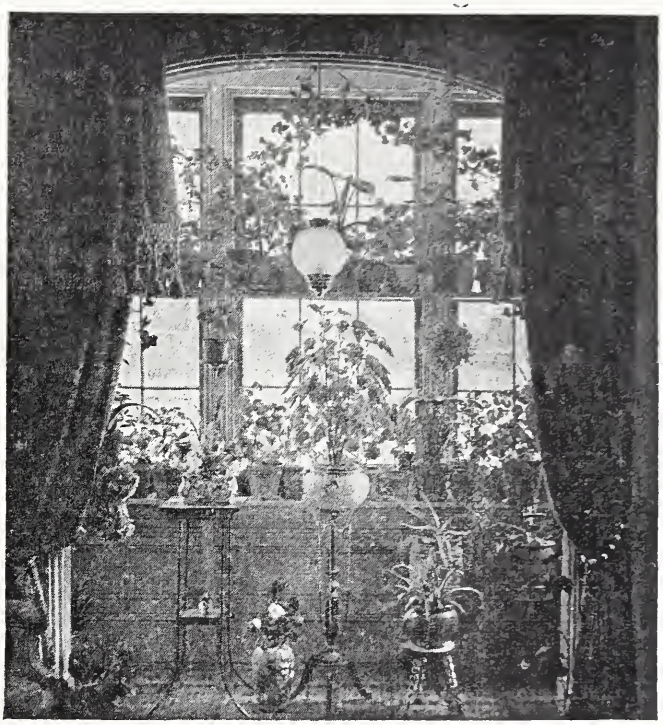
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THIS PICTURE and ON THIS!



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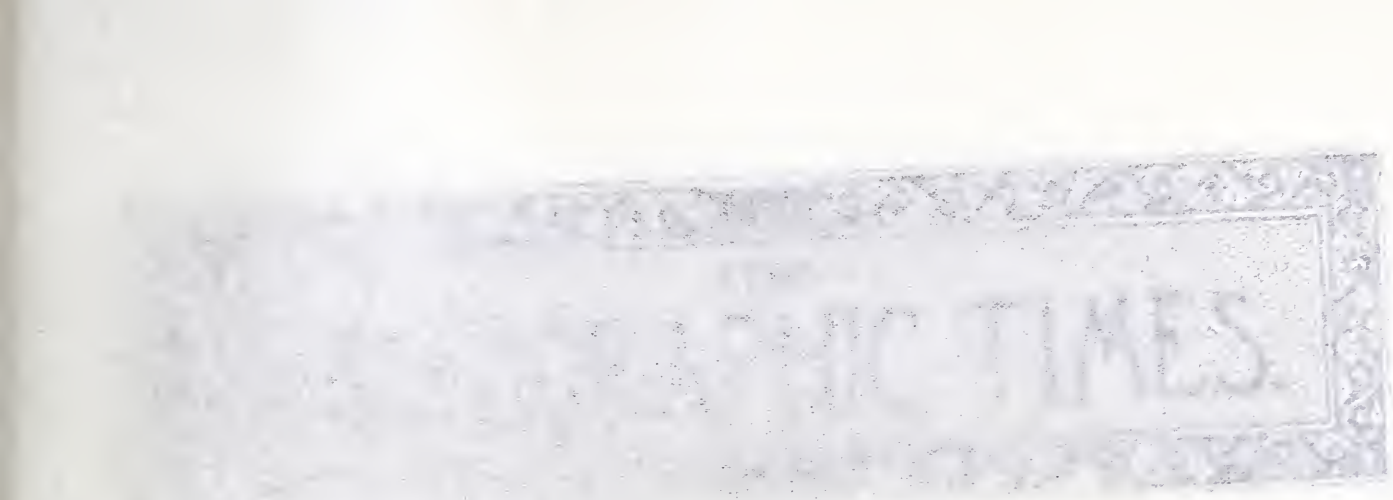
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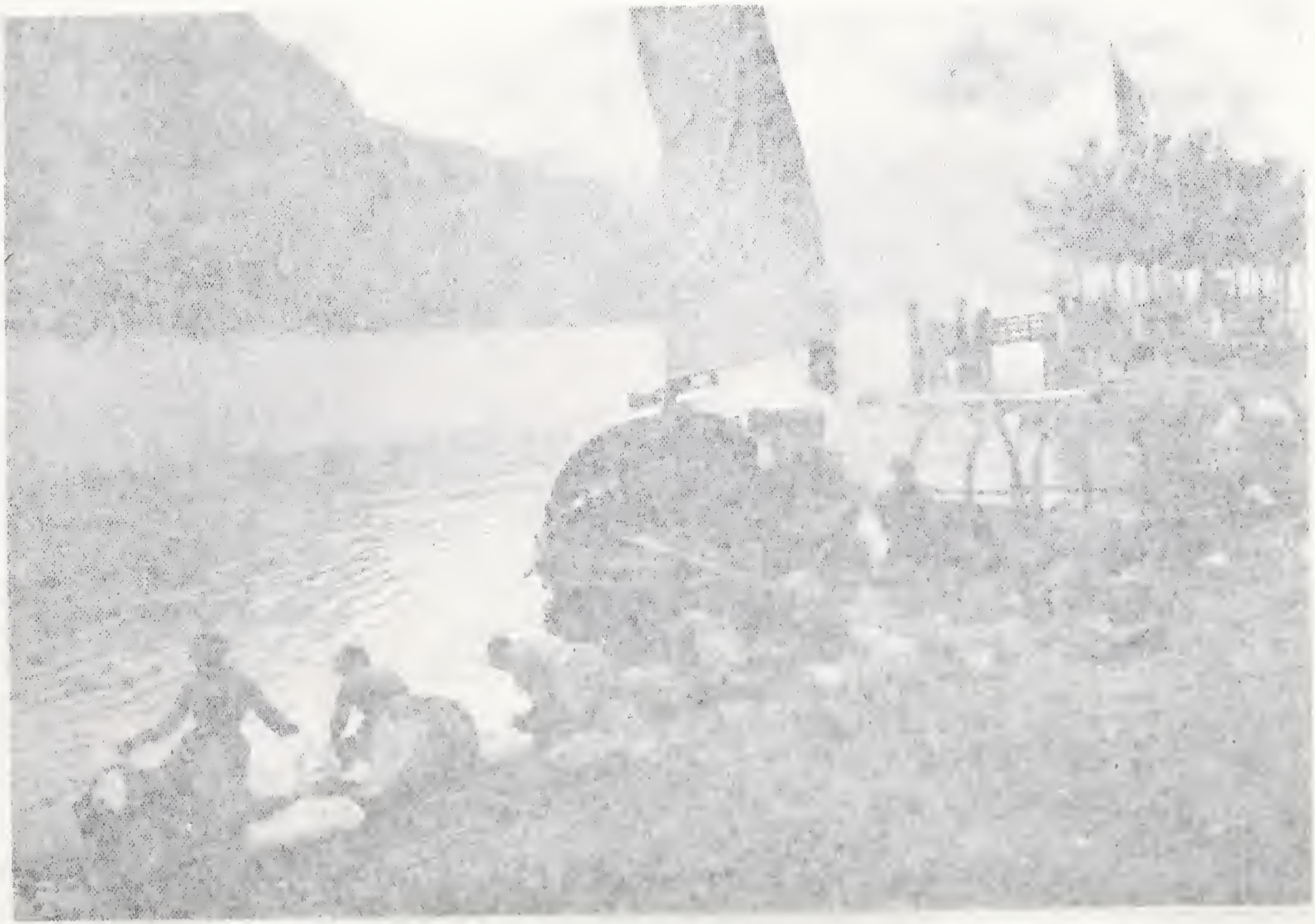
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At Lake Como.





THE PHOTOGRAPHIC TIMES.

VOL. XXIII. DECEMBER 1, 1893. No. 637.

"AT LAKE COMO."

THIS superb picture, which we have so much pleasure in presenting to our readers, is by Mr. Alfred Stieglitz, a description of whose life and work we give on another page.

FERROUS OXALATE DEVELOPER.

EVERY now and then we find in foreign as well as in American photographic journals the question put: "Who was the originator of the ferrous oxalate developer?" The answer is usually: Dr. J. M. Eder; occasionally Willis, Chapman Jones or Dr. Lagrange are mentioned, but the real inventor of that excellent developer, Dr. Carey Lea, an American, appears to be entirely ignored by many of our historians. When the emulsion plate made its advent, other developers than those we had used for the wet collodion plate were sought and pyrogallol, made alkaline, was proposed. These gave general satisfaction, and everybody appeared to be contented.

In the meantime Carey Lea continued his experimental researches for a developer for emulsion plates. Ferrous sulphate, he states,* has long been known to be the most powerful developer for the wet plate, yet is perfectly useless for dry development.

Ferrous sulphate precipitates metallic silver from the nitrate adhering mechanically to the wet collodion film, and while in the act of being reduced is attracted by the latent image. Nitrate or any other soluble silver salt is a *sine qua non* in the development of a wet collodion plate.

The presence of an organic acid, however, changes these relations in every respect. With many of these acids the iron requires the property of attacking and reducing the latent image in the absence of a soluble silver salt, thus producing a visible image.

Ferrous citrate, tartrate and formiate are tolerably good developers; ferrous lactate, salicylate and succinate act with more energy; but the best and most effective of all organic ferrous salts is the oxalate.

Oxalic acid has a sufficiently strong affinity for ferrous oxide to displace sulphuric acid in the ferrous sulphate. When a solution of oxalic acid is poured into one of ferrous sulphate, a bright yellow precipitate of ferrous oxalate is thrown down, forming slowly, but continues to increase in volume for some time.

The most convenient method of employing this organic iron salt as a developer, it being quite insoluble in water, is to dissolve it in a solution of potassic oxalate, which takes it up with great facility, forming *potassic ferrous oxalate*, our developer.

A much simpler method consists in *adding a solution of ferrous sulphate to a strong solution of potassic oxalate* until a permanent precipitate of yellow color *just begins* to form. The solution is filtered, the filtrate sufficiently diluted, and we have an excellent developer.

Carey Lea describes his experiments with ferrous oxalate on June 29, 1877.

The oxalate developer remained in obscurity till 1880, when Dr. J. M. Eder, in his pamphlet, "Der neue Oxalat entwickler," described it in detail and warmly recommended ferrous oxalate.

C. Schiendel remarks*: "Those unacquainted with foreign literature have ascribed priority of inventing the ferrous oxalate developer to Dr. Eder, and he himself is not averse to sharing their error."

That the average photographers of Austria and Germany, great admirers of Dr. Eder, and justly so, should believe this is quite excusable, when we

* *British Journal*, XXIV., page 293.

* "Geschichte der Photographie," Vienna, 1891, page 149.

consider how little is read by them on matters concerning their profession, but we take exception so far as the Doctor himself is concerned. Such a learned man as he is, well acquainted with the photographic literature in all languages, could not possibly commit such an error.

Just about the time when Eder published the formula for his oxalate developer, there is an article by Mr. York on page 237 of the London *Photographic News*, in which he says: ". . . This new developer, of which Mr. W. Bolton informs us, is an old one by Mr. Carey Lea, and which ought therefore to bear his name for distinction . . ."

Did Eder claim priority he would have answered this and other remarks we find in the press of that time.

The impartial historian cannot give priority to Eder, but as far as the practical and convenient ferrous oxalate is concerned much credit is nevertheless due to him. He has carefully calculated how much ferrous sulphate by weight is necessary to form with so much potassic oxalate the soluble double salt—the potassic ferrous oxalate. If his formula is strictly observed the solution remains clear, and after mixing is ready for use.

Carey Lea adds as much iron to the potassic oxalate until an excess of undissolved or uncombined precipitate occurs. His solution requires filtration and dilution. Eder's is ready for ues—evidently a great improvement in the process.

In "Photographie mit Brom-Silber Gelatine," p. 111, Dr. Eder says:

Carey Lea first (Zuerst) published, in *British Journal*, 1877, pp. 292 and 304, how solutions of ferrous oxalate in warm potassium oxalate develop the latent image of a bromide of silver gelatine emulsion plate, the same as alkaline pyrogallol.

Willis, on page 77, *Photogr. Archiv*, Vol. XX., gives the following formula for ferrous oxalate developer: Dissolve from 6 to 10 gm. of dry ferrous oxalate in 100 c.cm. of a hot 1 : 3 solution of neutral oxalate of potassium.

The author justly remarks: These methods of preparing ferrous oxalate developer are tedious, and not as practical and convenient as our own.

Chapman Jones and the late Dr. Lagrange have experimented much with the developer, have investigated the subject exhaustively, and much credit is due to them for the information given, but neither of them have ever laid any claim to priority.

EDITORIAL NOTES.

ONE of the most interesting features of our forthcoming Christmas number will be an article on "Astronomical Photography at the Lick Observatory," very kindly written for us by Professor Edward S Holden, the distinguished astronomer and author. The article will be illustrated with photographic reproductions of the moon at various ages, lunar craters, sun spots, etc.; in fact, the best article we have ever read upon the subject.

MR. ANDREW PRINGLE, who is a frequent contributor to THE PHOTOGRAPHIC TIMES, has, we regret to hear, been enjoying but poor health lately. He is now on his way to Southern Europe to recuperate. He has our best wishes for a pleasant journey and a speedy recovery.

MR. T. BOLAS, the well-known editor of *Photographic Work*, lecturing before the London and Provincial Association on the aluminium flash-light, said that aluminium was superior to magnesium in many points. It gave a light of higher actinicity, and the fumes given off were by no means so irritating. Commercial aluminium bronze powder, however, contains a trace of greasy matter which prevents the grain from readily separating, and cannot be properly blown through the flame. This grease, the lecturer said, could be driven off and destroyed by heating the powder to about the melting point of zinc, and for operating on a small scale, it is sufficient to heat it in a test tube over a spirit lamp. Aluminium can be stored in a minutely fine state of division without fear of deterioration, which is not the case with finely powdered magnesium.

A WRITER in an English contemporary has been experimenting with ammonia as a fixing agent. The conclusions he arrives at are that it is useless with albumen paper, for although it apparently gives the same result as hyposulphite and fixes completely, yet the image will show a marked deterioration in a few months. This defect was proved to be caused by the decomposition of the albumen film. With plain sensitized paper this defect was not apparent, and the prints fixed with ammonia held their ground equally with the ones where the silver had been dissolved by the hyposulphite salt. One fact was noticeable, and that was that those prints which had been toned to the blue or purple stage were far more permanent than

those that had not been treated to so great an extent. This fact, however, is one that has been known for some time, although it has, perhaps, been regarded with insufficient importance. The moral is, that if we require permanent images in silver prints, we must not content ourselves with the brown or reddish-brown tones so popular just now, but require to tone the prints to a dark purple with a toning bath strong in gold.

Mr. Matthew Wilson, who is the writer we refer to, is of opinion based upon these—his experiments—that for plain silver prints, ammonia, as a fixing agent, is superior to hypo. The bath he recommended is made up by adding 4½ fluid ounces of liquor ammonia to 10 fluid ounces of water. Fixing should be accomplished in a quarter of an hour, and the free alkali can be afterward readily removed by half an hour's washing in repeatedly changed water.

R. E. Liesegang informs us that beautiful tones can be obtained on aristotype paper (gelatine) by washing the prints and placing them in a solution composed of 25 parts of aluminium sulphocyanide (19 deg. Be) dissolved in 75 parts of water. In this they are permitted to remain until they become yellow. They are then washed and placed in a 1 per cent. solution of gold chloride. The chemical action is described as follows: The sulpho salt converts the unexposed silver chloride into sulphocyanide, which dissolves in excess of aluminum sulphocyanide. The film is not fixed and the silver salt is precipitated by washing.

Anthony's Photographic Bulletin for November 25th calls our attention to an oversight made by our translator, which we hasten to make right. We refer to the article by Dr. Jenney, which was translated from the *Photographische Mitteilungen*, appearing in our issue of November 3d, and properly credited to that journal. But it now appears that the article was originally translated into German for the *Mitteilungen*, from *Anthony's Photographic Bulletin*. This fact was overlooked by our translator, and consequently we were unable to credit the original source of the article. We take pleasure in doing so now, however, and we thank our contemporary for calling our attention to the matter, though it was done, we submit, in rather an ungracious manner. Such an oversight as ours is likely to occur in any editorial office, even "the best regulated."

A good deal of confusion appears to exist between the two terms photo-micrography and micro-photography. Although they have perfectly opposite meanings, yet one is often used for the other. Dr. Clifford Mercer, the distinguished photo-microscopist, writes, asking us to assist in distinguishing the two terms. As he says: "A photo-micrograph is a microscopic photograph of a microscopic object, while a micro-photograph is a microscopic photograph of a microscopic object."

To make these definitions still plainer to the beginner, we would say that a photo-micrograph is a photograph of a minute object taken by the aid of a microscope, so that it is enlarged usually many hundreds of times. A micro-photograph is on the other hand a photograph of any size object made so small as to be practically invisible without the aid of a magnifying glass. These kind of pictures are sold mounted on ivorine pen holders, paper knives, etc. They have a little magnifying glass in front, and when looked at appear as a large photographic transparency. The image is, however, usually about the size of a pin's head. They are made by the collodion process, the gelatine film being too coarse for this purpose.

PHOTOGRAPHING AT THE COLUMBIAN FAIR.

It is a matter of no little regret in an artistic sense that the restrictions accompanying the grudgingly bestowed privilege of photographing at the Columbian Fair have deprived the world of many a *picture* it would gladly cherish after the glories of that Fairyland have disappeared like the fading of a dream. For, albeit the work of amateur photographers (worthy of being so designated) is nearly always vastly more artistic and satisfactory than that of professionals, save in portraiture alone, as witness the samples in the British Loan Collection at the Fair, and the Annual Exhibition of the Photographic Society of Philadelphia, New York and Boston—the barring of all save hand cameras not larger than 4 x 5 inches, left little scope for the exercise of their taste or skill. Had the best workers among our foreign visitors or of our own land been at liberty to use such apparatus as they choosed, without restriction as to size, we should have had illustrations of this unrivaled and unapproachable wonderland now, alas, unattainable. For be it remembered that the negatives from which the larger views sold at the Fair are printed, were all made by wage workers, men whose daily business is to make a certain number of exposures for a specific compensation. Excellent though their technique may be, for "practice makes perfect," the spirit which would lead the artist amateur to

spend hours, if not days, in the composition and lighting of his subject must perforce be absent in them. Never before, at least in this country, have such combinations of architecture and landscape been made possible, and it is not a little exasperating to have had the wonderful beauties within one's reach, and been unable to grasp them in a larger degree than that bounded by the dimensions of a 4 x 5 plate. Under these circumstances it is little wonder that a majority of the most capable amateurs who visited the Fair did not do so in company with their cameras. They have not objected to the stiff charge of two dollars per day for the privilege of using one, but to the fact that the results obtained would not be satisfactory to their artistic consciences. The fashion of making negatives purposely for lantern-slides has not obtained to any great extent on this side of the Atlantic, and their small size are not generally very satisfactory for prints, while the work of the ordinary hand camera is not good enough to admit of enlargement to any considerable extent. Hence, as stated, the best workers are greatly in the minority among those who have paid for permits to photograph in the White City. A great number of "push the button" amateurs have been in daily attendance, making snap shots on any and everything in their way, especially upon the Midway Plaisance, but the results of their labors, in so far as I have observed them, have not been above the average of their now well-known performances. Most assuredly the world's desire for artistic picture remembrances of the Fair will not be greatly benefited by them.

I would not, however, be understood as making an indiscriminate attack upon the hand-camera, as such. On the contrary, it is a most useful, nay, indispensable piece of photographic apparatus, filling a place which no other form of camera could by any possibility do. It is the abuse, not the use of it that is to be condemned. And there are many forms of it which, in the hands of an expert and careful operator, are capable of doing most excellent and satisfactory work. But since the focusing (where the use of a tripod is inadmissible), must be largely a matter of guess work, really fine architectural and kindred subjects can generally be done rather by chance than of a certainty, even when the instrument is supplied with the finest of lenses by the best makers.

It would naturally be supposed that the charge of two dollars per day, exacted for the privilege of using a camera within the Fair grounds, should include the use of a dark-room for changing plates in, but the Photographic Bureau made no provision in this direction. Unless provided with a magazine camera, the amateur found himself restricted to a dozen or less exposures for a day's shooting, for the privilege of which he paid two dollars, but for the enterprise of several public spirited firms. These eminent houses conjointly erected a building near one of the principal entrances, wherein dark-rooms, with all conveniences for changing plates or films, were provided free to all who chose to make use of them. In addition, a stock of both plates and films in all sizes, both American and foreign, up to 4 x 5 inches, was kept, and sold at the usual list prices, rendering it unnecessary for one to provide a supply of same in advance of entering the grounds. *W. H. Walmsley.*

RECREATIVE PHOTOGRAPHY.

II.—MAGIC PICTURES.

THIS is the name given to photographs made so that they are at first invisible, but can be made to appear at will. Some considerable amusement can often be obtained with them, and they are simple enough to make. Take an ordinary silver print on albumen or gelatine paper. Plain silvered paper is the best for the purpose, but not absolutely essential; it can be made by soaking a sheet of plain well-sized paper in a two per cent. solution of common salt dissolved in water and hanging it up to dry. It is then floated on a ten per cent. solution of silver nitrate and allowed to dry once again, only this time in the dark.

The print, whether upon plain paper made in this way or upon albumen or gelatine, should after printing be fixed, without toning, in hypo and afterward well washed, as it is essential to success that the hypo salt be entirely removed.

The picture after washing is immersed in a saturated solution of bichloride of mercury, when the image will disappear entirely. It is then dried.

Next soak some bibulous paper in a saturated solution of sodium sulphite, and, when dry, paste a piece to the back of the print with a little starch paste brushed round the edges only. All that is necessary to make the images appear is to soak it in water, which dissolves the sodium sulphite, causing it to attack the print and make the pictures visible of a dark brown color.

Of course the pictures can be made to appear without the bibulous paper attached by merely soaking in water containing sodium sulphite, hypo, or a little ammonium; but if made in the way described they are always ready to entertain any one without the necessity of making up chemical solutions.

(*To be continued.*)

DISTINGUISHED PHOTOGRAPHERS OF TO-DAY.

I.—Alfred Stieglitz.

Alfred Stieglitz was born in New York in the year 1864. In 1881 he traveled to Europe for the purpose of studying mechanical engineering at the Polytechnic in Berlin, where he remained until the year 1885. When approaching the end of his course of studies, he became acquainted with Prof. Vogel, the head of the Photo-chemical Laboratory at the Polytechnic, and having always possessed a decided fancy for the art of photography, he determined to take a course of lessons from the well-known professor. Amateur photography was not at that time in vogue in Germany; indeed, even at the present day, it is comparatively little practiced in that country except for profit.

The science soon had such a fascination for him that he devoted day and night to it. He had determined to thoroughly master the technical details, and with a man of his disposition to determine was to accomplish.

The technical part having been mastered, the question arose in his mind, Is there no art in photography? Germany, as we have already stated, was at this time far behind, so that he stood alone, and was compelled to beat his own path. His best instruction was derived from the English journals, which were his real teachers in the art side of the science of photography.

It might here be mentioned that Alfred Stieglitz was the first amateur in Germany to employ platinum paper entirely, and also the first, probably in the world, to use orthochromatic plates exclusively for all work.



ALFRED STIEGLITZ.



Photo by Alfred Stieglitz. "WINTER." Photo-chrome Eng. Co.

He traveled through Italy and Switzerland, and in these countries succeeded in making a series of pictures which called for universal admiration, and which laid the foundation of his world-wide reputation. Our frontispiece, "On Lake Como," is one of these, a perfect picture in every way, and one that has already received several high awards.

In 1887 he exhibited for the first time, in London, and was awarded first prize. P. H. Emerson was the judge, and this gentleman, evidently seeing in his work the promise of great things, wrote him a letter encouraging him to push forward.

About this time he decided to study chemistry, to better enable him to thoroughly master photo-chemistry, and for this purpose he worked hard for a couple of years at the University in Berlin. During this time, however, he was by no means idle, but was winning prizes for his pictures in all parts of the world. He also interested himself greatly in the theoretical side, and wrote for several of the German photographic papers. His chief aim was to constantly keep himself "up to date" in all that was progressing.

In 1890 he returned to the United States and was, by accident, drawn into the business of photo-engraving, in which he is at present interested. His technical abilities have been of wonderful value in this respect, and the firm of which he is a member is now known the world over for the high excellence of their productions.

Although actively engaged in this business, he has by no means neglected the art of photography. Born a perfect artist it was not likely that he would neglect the opportunities thus afforded to him. Artistic composition forms the chief element in every one of his pictures. There is no striving after absurd effects. He thoroughly believes in the possibilities of producing work of real art value by means of photography, although it means very hard work and conscientious study, and proves it by such pictures as "The Card Players," "Stones of Venice," "At the Brook," "Venezia," "Wander's Return," "The Last Load," and many others.

It will not be difficult to understand that the amount of work he has performed in his strong desire to advance the art side has not been without considerable expense. In fact he has spent many thousands, but everything has been done for love, and invariably has he magnanimously refused to accept any remuneration for his labors.

His awards number about 40. He has gained reputation in London, Berlin, Vienna. Was one of the very few Americans accepted at the Viennese Salon; the only New Yorker to receive the Boston Joint Medal in 1892; also at Philadelphia in 1893. He received an award at the joint New York exhibition in 1890. He is the holder of the *Amateur Photographer* (London) gold medal; also medals at Berlin, Buda Pesth, Frankfurt, etc., etc.

His latest action has been to accept the editorship of *The American Amateur Photographer*, purely for love, and so as to enable him to work for the glorious cause which he has thoroughly at heart. His chief desire is to see America standing photographically on a level with England.

Personally, Alfred Stieglitz is a gentleman of high culture and rare abilities. He is enthusiastic in all that pertains to photography, and is one of the most active members of the Society of Amateur Photographers of New York.

The illustrations that we give are half-tone reproductions of some of his pictures. In the first, entitled "Winter," we see at once the artist. The subject is merely a desolate road with an old piece of fence and a direction post, but by the treatment and arrangement we have a perfect picture full of meaning.

"The Last Load" is a perfect example of artistic arrangement and natural posing. "The Card Players" is another; a more difficult subject, but with faultless treatment. "The Wanderer's Return" is a picture such as an artist would paint; a picture telling its own sad story. We can imagine that this woman has listened to the flattering words of some smooth-tongued villain who has induced her to leave her home, poor and humble though it may be, but still her home. And then, alas, when it is too late she finds out the real character of the man to whom she has given all. She finds herself merely his plaything, to be cast away when he has become tired and weary of her, and then she is adrift in the cruel world, and after a fearful struggle for herself she returns to the old home in fear and doubt. And here in this picture we see her. But she smiles when she sees the old familiar place once again, and although her sin has been great and will require a life's atonement, she knows that loving parents will forgive and forget.

"The Truant" is another picture telling its own story, a story that brings us unconsciously back to the days of our youth. It is in the treatment and pose of these pictures that Stieglitz excels.

To such men as Alfred Stieglitz the progress of our art is in a great measure due, and it is unfortunate for this country that there are so few to equal him in abilities, and with the same amount of enthusiasm, activity, and love for the furtherance of the cause.

We understand that the subject of our sketch has recently turned Benedict. We wish him and his charming bride all prosperity, and a long life of happiness. Such men as this we cannot afford to lose.

IF AND WHEN?

How often during the past two weeks have I ardently wished that color photography were *un fait accompli.*

What a wonderful picture gallery every man might have for himself if he could develop negatives so as to bring out the colors of nature.

Let me tell you what I have seen during these four weeks in my rambles along the Bronx and on the Passaic, and what I would like to materialize on glass in their natural colors.

Little purple asters, golden rod, and bursting pods of feathery milk weed spreading their tangle against the many colored greens of the grass; baby violets, giant oaks, anemone and passion flowers all lighted up with sunshine that laughed for very joy.

There were forest trees flaming like a fire-illumined sky; grapes hanging down from vines in bacchanalian profusion; apples blushing at their own loveliness as they hung temptingly from burdened branches; chestnuts browning in their fuzzy pods as they swing to and fro in relief against white masses of fleecy clouds in azure skies, and ruddy vines that clamber along the rough gray stones. Can anybody's pen describe them as color photography would?

Look at this one, it separates above the first story of the old graystone building in three giant branches which extend in unequal lengths nearly to



Photo by Alfred Stieglitz. "THE LAST LOAD." Photo-chrome Eng. Co.

the high roof, where they make three enormous splashes of color,—purple, scarlet, and one showing the vivid green of spring.

Look again from this country road, at the hillsides all aflame with brilliant forest trees.

The trailing, clinging vines on the wall compare with the flaming hillsides like a dainty Meissonier does to an enormous canvas of Hans Makart.

Observe the watercourses and ponds, reflecting clouds, skies, trees, bushes; see the gold of the cottonwood shimmering in the water and the branches coquetting with each other; what splendid minuets they are dancing; how faithfully the water reflects their slightest motion; it is identity rather than resemblance; and there in the corner of the dark pool the yellow of the cottonwood tree is relieved by the red of the sumach and greens of moss and fern.



Photo by Alfred Stieglitz. "CARD PLAYERS." Photo-chrome Eng. Co.

What would I not give to have the secret of perpetuating in natural colors that low foreground with the hedgerow lichened above the water line, and the green-grayish-brown rail fence, with its foreground of water and its splashes of red and yellow tinting; how this pond was gilded and glorified by the setting sun; how the edge of that ragged cloud which floated its crimson pennons before me, straight to the depths of the blue empyrean, cast many colored shadows on the silent pond. How it mirrored with photographic definition all its environment, now in velvet glassy cool and calm water, now in blurs and cloudy ripples, and then again in troubled shadows, brilliant lights, and pebbled water beds.

Ah! when shall we carry home with us in our little boxes the pictures that autumn limns? Let us hope it will be soon.

Ah! brother camerist (and in this term I include you, beloved sister picture maker), when do you purpose to invite your friends, at Christmas time, to inspect the dozen albums of your summer and autumn color pictures? Will it be this Christmas-tide, or the next?

I know of one noble beech at Tuckahoe, on which the golden russet is laid on without stint, the picture of which you will point out to them, and near it a string of sumac runs athwart the meadows with an audacious sanguine hue, and on it, over and through it, runs a vine of poison oak garlanding it with splendors of ethereal green, gold, and crimson; see how the branches and vines tremble and shiver as they are kissed by the zephyrs as if they fain would hide themselves from their ardent embraces.

It happens frequently that a wet plate when

drying, and for an hour or so thereafter, shows prismatic colors and color effects.

Does this point to the possible fact that at some time an emulsion may be discovered which by a process of development, as yet unknown, shall produce direct, permanent colors on the negative?

What a wonderful thing it would be, "if" this were to lead to a solution. What a wonderful consummation "when" the process shall become *un fait accompli*.

Professor Lippmann, Mr. Ives, of Philadelphia, and Robert D. Gray, of New York city, assert that the "if" is assured. Which of them will be the first to solve the "when"?

Wm. Geo. Oppenheim.



Photo by Alfred Stieglitz. "THE WANDERER'S RETURN" Photo-chrome Eng. Co.

THE SILVER-PLATINUM METHOD OF PRINTING BY DR. FR. MALLMANN.

(INDIRECT PLATINUM PRINTING.)

Prints produced by this process are almost equal in quality and tone to pure platinum pictures, and have the advantage of being considerably cheaper.

SOLUTIONS.

A. One gramme of arrowroot is rubbed in a mortar with 10 c.c.m. of cold water and by constant stirring poured into 75 c.c.m. of boiling water, and after adding 15 grammes of ferric oxalate the solution while still hot filtered through several thicknesses of cotton cloth.

The solution is light sensitive.

B. Silver nitrate, 10 grammes, dissolved in 60 c.cm. distilled water.

To sensitize the paper mix

Solution A.....8 c.c.m.
Solution B.....2 c.c.m.

The coated paper is dried quickly over the flame of an alcohol lamp. A sheet of Rives or Steinbach paper 30 x 40 requires from 7 to 8 c.c.m. of the sensitizing solution. More of it will be required for thicker and rougher paper.

Printing and subsequent operations are the same as with the platinum process with hot development. The developing solution consists of

A. Potassium oxalate 1 : 6.

B. Bichromate potassium 1 : 50.

C. Concentr. C. P. nitric acid.

For use take of

A.....30 parts
B.....3 to 4 drops

For harsh or very intense negatives a little less, and more for feeble negatives.

C.....2 drops

The picture develops at once and with a fine reddish-brown tone. The solution may be used over and over again.

After development is completed the print is well washed in running water, and then immersed in diluted nitric acid, 6 minims to 100 c.c.m. of water, for about one minute, and thoroughly washed in pure water.

The platinum toning bath is a solution of

Chloroplatinite of potassium.... 1 gramme
Distilled water..... .500 c.c.m.
Conc. nitric acid..... 10 minims

which changes the reddish-brown tone of the picture in a few minutes to a fine platinum tone.

The print should remain in the bath till it looks gray by transmitted light; it is then fixed in an acid hypo bath 1 : 10, washed thoroughly, dried and mounted.

Charles Scolik.

ANGLE OF VIEW.

[London and Provincial Photographic Association.]

IF we examine the picture formed by a photographic lens upon a screen of sufficient size, we shall find it is circular. This circle is the base of a cone of rays transmitted by the lens. Divide this cone in the direction of its axis. The section is triangular, and the angle at the apex is called the angle of view. Let us suppose the focusing screen is square, and that the circle of illumination touches each side. A plate under such conditions would be unexposed at the corners. Yet, to calculate the angle inclosed by such a plate, we have been directed by the rules hitherto accepted to take the diameter of this circle as a factor. It is an astonishing fact that these rules have the sanction of a number of writers, amongst whom may be mentioned Shadbolt, Grubb, J. H. Dallmeyer, Traill Taylor, Woodman, Emerson, and still more recently A. Haddon, the respected curator of this society.

To cover a plate such as has been described, it is evident the circle of illumination must enclose the plate, and not the plate the circle of illumination. We must therefore measure the diameter of the circle by the diagonal instead of the side of the plate. The perpetuation of the mistake is probably due to the habit, common amongst writers, to take data at second-hand rather than think them out for themselves. There are, however, two noteworthy exceptions. Dr. Eder, in his *Ausfuhrliches Handbuch der Photographie*, gives rules and tables for calculating the angle of view included by a lens, and for that included on a plate. For the latter he takes the diagonal as the basis. Professor W. K. Burton also estimates the angle of view by the diagonal of the plate, according to an article on the Concentric Lens in *Photographic Work*, February 24, 1893.

Recently I criticised, before this society, the rules laid down by Mr. Haddon for calculating the angle of view included on a plate. They were published in the *British Journal Photographic Almanac* for the current year, and may be taken as correctly representing the rules of the writers first mentioned. These rules take the longer side of the picture as the base of the triangle enclosing the angle of view. You may follow the rules and work the problem correctly, but the answer will always be at variance with the facts. Either the angle will be too wide or the focus of the lens too short, when you take the photograph. We may also have a series of plates such as 15 x 9, 15 x 10, 15 x 11, 15 x 12, yet, by these rules, all will include the same angle, with the same lens, under similar conditions; or, if we

wish to include a given angle from the same station-point, we must use a lens in each case of identically the same focus. Further, no matter what position the lens may occupy on the front of the camera, the angle will remain the same. Rules giving such results are evidently wrong, and, as a more rational system, I would suggest the adoption of the method used in perspective.

The circle of illumination of a lens corresponds with the base of the cone of visual rays. The lens is the eye and the picture plane is the photographic plate.

These are corresponding terms in photography and perspective. The picture plane is vertical, and must not extend beyond the base of the cone of rays.

The angle of view in perspective is limited to sixty degrees, to avoid that exaggerated appearance with which we are familiar in pictures taken with wide-angle lenses. But, for the purpose before us, this may be disregarded, since what is true of an angle of sixty degrees is also true of any other angle. In perspective, if the picture plane touches the edge of the base of the cone of rays at any point, it is said to include an angle of sixty degrees, and, similarly, we may speak of pictures including any other given angle.



Photo by Alfred Stieglitz. "THE TRUANT." Photo-chrome Eng. Co.

On the picture plane there are two important lines, the base line and the horizontal line; the base line is that upon which the picture rests, and the horizontal line extends from right to left at the height of the eye. Upon this line is the centre of vision, or centre of the circle forming the base of the cone of rays. The axis of this cone is called the principal visual ray, and corresponds with the focus of the lens.

The artist may select any portion of the base of the cone of rays for his picture, and the photographer does a similar thing when he moves the cross fronts of the camera in arranging the subject on the focusing screen. What, then, are the conditions which determine the angle of view for any given picture? First, the distance of the spectator from the picture plane, which, in photography, we may call the focus of the lens. Second, the position of the centre of vision, which, as I have shown, will vary according to the position of the lens on the front of the camera. To ascertain the position of the centre of vision, we must draw a line perpendicular to the plate from the apex of the cone of rays. Where the line touches the plate is the centre of vision, and we must measure the distance thence to the farthest corner of the plate. We can now measure the angle of view by means of the table of natural tangents given by Mr. Haddon, the rule for which should be stated thus:

To find the angle, divide the distance from the centre of vision to the farthest corner of plate by the focus of the lens. Find the nearest number to this in the table of tangents, and twice the arc

opposite it is the angle required; or, if we know the angle of view, and wish to find the focus, find the tangent opposite the arc, which is half the angle of view. Divide the distance from the centre of vision to the farthest corner of plate by the tangent. The answer is the focus of the lens required.

Mr. Haddon was unfortunate in the selection of the title of his article "Angle of View included on a given Plate by a given Lens." If the lens is not opposite the centre of the plate, the whole angle of view is not included. But the expression is permissible if we understand by it the angle under which the picture is taken. I mention this merely to draw attention to the fact which some may overlook, that the angle is different if the lens is moved by using either of the cross fronts. It must also be remembered that a lens can be used to cover a larger angle if the axial ray is not perpendicular to the plate, as pointed out by Mr. W. D. Debenham when this subject was last under discussion. But, as I have used the term angle of view in relation to the picture, and not to the lens, the rules I have given apply to the picture only. If it is required to calculate the angle covered by a lens under the abnormal conditions mentioned, the necessary modification must be made in the formula.

P. Everett.

PHOTOGRAPHS IN NATURAL COLORS PRODUCED BY THE IMPROVED PROCESS OF L. LUMIÈRE, AFTER PROF. LIPPMANN'S INTERFERENCE METHOD.

(London Camera Club.)

THANKS to the great kindness of M. L. Lumière, of Lyons, we are able to examine the latest results obtained by him. A few explanatory remarks are necessary to make the method of their production generally intelligible. About two years ago Prof. Lippmann, of the Sorbonne, in Paris, succeeded in producing photographically a colored image of the solar spectrum, based on the well-known principles of interference. He used for that purpose a plate coated with an albumen, collodion or gelatine sensitive film. This sensitive film was during exposure brought into contact with metallic mercury, the image of the spectrum being projected on the film through its glass support. The light, after penetrating through the thickness of the film, was reflected back from the surface of the mercury, the direct light waves encountering the waves of reflected light, producing the phenomenon of interference in the thickness of the film. The waves of light propagating in opposite directions cause the vibrations at certain intervals to be neutralized, while at others they are intensified. If such a plate could be developed, fixed and dissected, we should find it to consist of strata of the black deposit of silver, produced by the developer in the parts corresponding with the maximum of light succeeded by the transparent strata, corresponding to the minimum of light where the developer had no action. The distance between the strata is equal to half the wave length, which is 600 ten-thousandths of a millimetre for red light, 583 for orange, 551 for yellow, 475 for blue, and 423 for violet In a film of 1-20 mm. thickness, there will be about 200 such strata. It is evident that on examining such a plate by reflected light we shall observe the colors, because it is formed of a series of films of the thickness requisite to produce color sensations. Subsequent experiments proved that, by using a gelatine film sensitized with a chromium salt, a similar result is obtained, the action of interference producing strata of soluble and insoluble gelatine.

The exposure of the plates produced by Lippmann was very long, and, owing to the variation of sensitiveness of different rays of the spectrum, necessitated the masking of the portions exposed to the more actinic rays, while the others are exposed. L. Lumière succeeded in producing colored images in one operation, and in last May, in a paper read before the Paris Académie de Science, gave full particulars of the process as follows:

To prepare the emulsion the following solutions are made—

A.

Distilled water	400	parts
Gelatine	20	parts

B

Distilled water	25	parts
Potassium bromide	2·3	parts

C.

Distilled water	25	parts
Silver nitrate	3	parts

One-half of A is added to B, and the other half to C. These two solutions are mixed by adding the silver to the bromide. A suitable sensitizer is added, such as cyanine, methyl-violet, erythrosine, etc., and, after filtration, plates are coated on a tourniquet at a temperature of 40 degs. C.

When the emulsion is set the plate is immersed in alcohol for a very short time, and washed in a continuous stream of water. The film being very thin, the washing is soon effected. This emulsion should not be washed in bulk, lest coarseness of the particles of silver produced by re-heating results, and in order to have the films as transparent as possible; for the same reason a great excess of bromide is to be avoided. The plates are dried, and just before use are immersed for two minutes in

Water	200	parts
Silver nitrate	1	part
Acetic acid	1	part

This bath helps to produce brilliancy of the image, and to increase the sensitiveness. But the plates cannot then be kept long and the sensitive surface soon deteriorates. When the plate is dry, it is ready for exposure *à la* Lippmann, viz., with a reflecting surface of mercury next to the film.

For the developer the following solutions are made—

I.

Water	100	parts
Pyrogallic acid	1	part

II.

Water	100	parts
Potassium bromide	10	parts

III.

Ammonia D. 0·960 diluted to 18 degs.

Solution I	10	parts
Solution II	15	parts
Solution III	5	parts
Water	70	parts

The degree of concentration of the ammonia has a great influence on the result, even a slight alteration destroying the brilliancy of the colors. For fixing, the plate after washing is immersed for from ten to fifteen seconds in a 5 per cent. solution of potassium cyanide, washed and dried.

In order to lessen the action of the ultra-violet, violet, and blue rays, a parallel faced bath of Victoria yellow, uranin or primuline is used in the camera.

The pictures lent by M. Lumière are 6 by 8 cent. in size, and when seen at a certain angle show colors of unsurpassed beauty—beyond anything we are accustomed to see in the way of the reproduction of colors—somewhat metallic in appearance, but very bright and of very decided and definite color.

To examine them direct, the best plan is to use the reflected light of a bright sky, or if a lamp must be used it is preferable to have the light reflected from a white shade or opal globe.

To fully appreciate all the beauty of these photographs, the image should be lit by a powerful light (preferably electric) and a projection made on a screen by means of a portrait lens (4 in diameter). The result is then of such beauty as to defy description—it is not like an oil painting or a water color; it is like real nature on a bright summer's day. Seeing these first photographs in natural colors we feel we are in the presence of one of the greatest inventions of the nineteenth century, and we may sincerely congratulate our friends on the other side of the Channel upon so splendid an achievement.

(The photographs in colors were exhibited by means of Captain Abney's electric lantern.

Leon Warnerke.

OUR PICTORIAL FAILURES.

(British Convention.)

Let me commence my remarks by a confession. In a moment of vanity I was induced by the irresistible suavity of the honorable secretary to promise a paper for this meeting on some art topic. Little did I then think how difficult it would be to find a suitable subject. Thus once more the old saw is illustrated, "Pride goeth before a fall." At the moment of my rash promise I had failed to realize the numerous conditions of the case; and thus more time than I care to tell has been consumed in search of a subject. In a way, too, that has made me feel the force of one who describes his fruitless chase after a certain all-too-familiar, but unmentionable, insect. "No sooner you put your finger on him, but he isn't there at all, and the reason of that same is directly you catch him you miss him." Thus, again and again have I thought I had hit upon something new, only to find it not true; or again on something old and true, but so very *conventional* that it could no longer be held to interest a *conventional* gathering. Or, again, if a subject presented *conventional and convivial* features—for the two are in our case somewhat closely akin, if not interchangeable terms—then I grasped it, only to find that it was neither new or true. Hence I reach the crux of my apology. In our "failures," we each may hope to find some conventional, *i. e.*, extenuating or mitigating circumstances. Our failures are, alas! only too true; their truth is only too deeply driven home by their painful frequency. And yet the cloud has a silver lining. Our failures are ever *new;* their newness and freshness has all the doubtful charm of being very much "up to date."

I shall presume that most of us when visiting a photographic exhibition have at least two objects in view. Firstly, to see and as far as possible enjoy the work of others. Secondly, to gather hints and information from the work which has most favorably impressed us. The second of these only concerns us for the present moment.

I venture to think that I am speaking for many others as well as myself, when I say the general impression, after visiting an ordinary photographic exhibition, is one of failure rather than success. To put the matter in other word, the number of pictures that one thinks about afterwards, or would care to possess for constant companionship on the walls of our living rooms, is exceedingly small. Would half a dozen out of every hundred exhibits under or over state the mark? Leaving a liberal margin for personal taste, the net result is that the majority—a saddening majority—are, if not failures, certainly not definite successes. There must be some grave reason for so significant a conclusion. Nor should the enquiry fail to interest, stimulate and add to the value of the discussions of this gathering. On this point I would suggest the following points as being contributory in varying degrees to the general product of non-successes. The free discussion of the topic, whether leading to rejection or acceptance, cannot fail to draw some attention to the subject, and hence tend to diminish the number of failures. But I am not without hope that the results may be distinctly positive and fruitful in producing a greater number of distinct successes.

Some suggested reasons of our pictorial failure:

1. *The Common Place.*—I venture to put this first because it seems to include—in somewhat free and easy terms, I admit—the majority of the unremembered. This includes the characterless many, who neither please nor pain—everything about them, selection (save the mark!). exposure, printing, mount and frame, are simply "middling." Hence we are utterly indifferent as to their future fate. Why are they entirely lacking in interest, in the general absence of any positive conspicuous defect, you ask? I reply, the worker in his so-called selection has exactly failed to select. He has taken things as they are. Selection surely implies rejection as well as acceptance, In the cases before us it has been all acceptance and no rejection. Nay, rather, may we not say that the general tendency, where it shows any thought at all, points to over-crowding rather than selection. Perhaps collection would be a better word. The "art of leaving out" in many cases, if known, is sternly ignored.

A large element in the common place is the presence of so much which is utterly unessential, immaterial, uninteresting, and hence discursive and generally weakening. It acts like a diluent. A teaspoonful of the best and purest and strongest whiskey would have but a poor chance in a gallon of the purest "*aqua-pumpibus*," negative and innocent as that diluent might be.

2. Next comes *Indefiniteness*—By this I do not refer in any way to the method of producing the out of focus or so-called fuzzygraph method of working. The indefiniteness here indicated is that due to lack of definite aim or intention. This is the man who "aims at *nothing* and hits *it.*"

We are assisted to recognize this class of work when it

appears with such delightfully bewildering and vague titles as "a study," "a nocturne," "an effect." The only, if any, effect generally produced is that of bewildered inquiry, or perhaps a reminder of some recent puzzle picture subscribed, "Find the dog, the policeman and the baby."

Impressionism may be all very well in its proper place, provided always that the artist has an impression and some reasonable power of expressing it. But if the would-be-impressionist desires to snatch applause by feeble imitation, or shelter his incompetence under vague title, then he is in no way a true friend to the progress of photographic art.

The third place may be assigned to the defects due to *imitation*. The old saw which says that "imitation is the sincerest form of flattery" requires its "teeth setting" more in a line with actual fact. Experience seems to show that it is only those seeking spurious greatness in the cloud of dust they raise who find any acceptable flattery in the mimicry of a tail of followers, who, in turn, having no ideas of their own, are ready and willing to accept such ideas of their leaders as require the least, if any, effort to assimilate or digest.

It may well be doubted if any one who has thoughts, methods, or idea, of his own of any real value would accept on any terms the fulsome flattery of brainless imitation.

Would Shakespeare, Milton or Tennyson, Reynolds Constable or Turner, have turned aside one hair's breadth to win a following of those who at best could only accentuate the defects of their leaders, and dilute beyond recognition their choicest merits. We may look and look in vain for any great artist in form, color, song or stone, who has wrought his way to lasting greatness by imitation, such as is not altogether unknown by those who are eager to be dubbed photographic artists. Earnest, conscientious and laborious study and analysis of the greatest works of the greatest men is no doubt of inestimable service to those who aspire to be their compeers, but true study points to principles rather than rules,—results rather than methods. The student will be as anxious to avoid the semblance of imitation as he is desirous of reaching, if not outstripping, the triumphs of the masters who inspire him; at the same time, there will be an equal anxiety to make his work his own beyond the chance of merit it may possess being suspected of having been filched, or even borrowed, from the work of another. Much has been said, sometimes with truth and sense, and sometimes otherwise, on the subject of schools in photography. The pages of the history of painting teach us that "schools" are not to be manufactured at the whim and fancy of individuals. The causes at work were deeper seated and more fruitful than the passing popularity of an eccentricity or novelty. Furthermore, this difference between painters and photographers seems to lie on the surface. Whereas, among the schools of painters, each and all profess (and practice with varying degrees of truth) to study in and appeal to Nature—each school professing itself to be a more faithful exponent of Nature than the others, and in that sense all are impressionists—while, on the other hand, photographers with an equally charming candor, one and all profess to study in and appeal to the same great school, Nature; yet it would seem as though not a few were content to have their seeing and thinking second-hand, since, by their productions, their efforts show an industrious and not always unsuccessful effort at imitating the productions of each other.

4. *An inversion of the means and the end* must be held in part responsible for some mispent energy. An all-consuming anxiety to display to its utmost limits the possibilities of some instrument, the capabilities of some process, is a terrible temptation to many. Microscopic definition, biting sharpness, topographical precision are phrases that have had their day and due regard. The transitional phase of differential focus is passing into further development of astigmatic distortion, or the suppression of definition by diffraction.

In those of an independent or experimental turn of mind, their means may, and do at times, produce results which are not only extremely interesting, but also have a value as being expressions of a personality, but the counter balancing disadvantages come *pari passu*. No sooner does one see a success snatched by some pioneer, but it is quickly imitated and diluted to such an extent that its virtues, even though few, are ignored, while its defects, no matter how many, are each and all repeated until the unfortunate founder or leader of the school is saddened by finding that the world only sees his excellences or his multiplied defects.

The "fatal facility" of production tempts the great unthinking crowd to rush headlong down the course of destruction leaving in their trail "wrecks and ruins" of wasted material. Now do they rush for the pictorial crown through *f*/64 of a highly corrected symmetrical doublet; now through a pin-hole; now it is a spectacle lens; now an astigmatic lens. Having tried and found wanting any and every lens, and finally no lens at all, inspiration whispers: "Try a new printing process." Thus from chocolate-box-lid polish and gloss to roughest sand-paper is but a step. In each and every case an anxiety to display the means, rather than use the means according to the end desired, meets us again and again, and accounts for some proportion of the pictorial failures.

5. Lastly. Some small place must be found for the failures due to *misdirected rivalry*. That a certain picture obtains a measure of notice is enough to set some at work to outstrip this picture by some slight advance either in subject, pose, lighting, or other method or means employed. The resuls of such rivalry must of necessity be unhealthy, as being the product of jealousy and imitation. All thinking art workers are agreed that the first quality of success is that the work attempted shall be felt worthy of the effort expended on it for its own sake. In other words, if a man's heart is not in his work there will be very little art in it. Obviously, then, where one attempts to imitate and rival the productions of another, it is not a case of true affection, but the green-eyed monster that is secretly at work.

To sum up briefly, our inquiry seems to point to a handful of causes tending to produce work which, if not distinctly and definitly failures, are undoubtedly not sucesses. Let us go, in imagination, five times round the walls of a photographic exhibition. On each journey we shall weed out such pictures (or rather prints) as show the following shortcomings:—

1. The common place, due either to overcrowding of entirely extraneous, uninteresting, unessential elements. For the most part, if they are not positively offensive, they are absolutely uninteresting, dull and characterless. They are "*the jelly-fish order.*"

2. The indefinite or meaningless, that have nothing to say and say it in silent eloquence. Their result, if any, is only to irritate. These are "*the penny puzzle-card order.*"

3. The feeble imitation class, wherin what little excellence (often difficult to find) has been obtained by other than honest, straightforward, individual and personal work. These we may dub the "*petty larceny class.*"

4. Means *v.* end, where the worker is anxious to display his dexterity in the use of his tools, perhaps with the hope that, as "fine feathers make apparently fine birds," so possibly artfulness may pass current for art. Let us call these "*the conjuring trick class.*"

5. Rivalry. Where one worker endeavors to build a fame upon the head of another worker, not because he cares about the subject, but because he is anxious to try and make himself the larger by ungenerously belittling another probably more modest worker. As it is not easy to find a name for these, perhaps we may best pass them over as the "*nameless unworthies.*"

Having removed, gently but firmly, the foregoing five siftings, it may be reasonably hoped that whatever, if any, are now left will have suffered no loss but gain rather by having passed into "Standard Six."

F. C. Lambert.

Notes and News.

"The illustrations (of THE PHOTOGRAPHIC TIMES) are alone worth the money," writes Mr. Charles Moss, who has just been awarded a medal at the Photographic Society of Great Britain's Exhibition, for an artistic picture entitled "After Sundown."

Marion Crawford opens a new line of thought in his article entitled "Rome, the Capital of a New Republic," appearing in the October *Cosmopolitan*. It is not likely that the October number will have the success which attended that for September. The extraordinary spectacle was presented of a 12½-cent magazine selling for 50 and 75 cents, and many hundreds were even sold at $1 each.

The photographs referred to in these columns not long ago as having been discovered in Washington City, turn out to have been made by Alexander Gardner many years ago. Among the most interesting are negatives from life of Lincoln, Charles Sumner, Stanton, Chase, Henry Wilson, Horace Greeley, Gen. Grant, Gen. McClellan, Rev. Henry Ward Beecher, Professor Agassiz, and also a negative of J. Wilkes Booth.

"The Practical Photographer" tells us that one of the Australian cut-throats scored heavily from the best photographers by sending them, through some private person, wretched old photographs to be enlarged. He then took a prominent shop window, showed some really fine specimens of his own (?) production, and put with them the enlargements received from the old houses, with cards saying: "This is the style of enlargement sold by Halk (or Charlemont, etc.) for £5 5s."

Some time ago an artist held in high estimation, and deservedly so, as a delineator of bird life, thought he would try how far photography would assist him. He bought a camera, took some lessons, and commenced on his own account by photographing a live partridge. One experience was quite sufficient. He found that all his life he had been drawing partridges wrongly, but he dared not change. "Why," he said, "if I were to follow a photograph I should have to educate myself over again." And there and then he put the camera aside.—*Photographic News.*

A novel and certainly a most delightful scheme of travel is being arranged for the benefit of amateur photographers during the summer of '94. This is a bicycle tour through portions of the continent of Europe out of the usual route of travel, and abounding in the beautiful and picturesque both in nature and art. The party will be composed of members of the various camera clubs throughout the country, will be limited in membership, and prizes will be given for the best sets of fifty views taken on the tour. Arrangements for this party will be made by Mr. F. A. Elwell, of Portland, Me., who has conducted many wheeling parties through Europe during the past five years. The cost of the complete round trip will be about $330.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious. The possession of a PHOTOGRAPHIC TIMES Medal will, therefore, be a guarantee of high merit.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Any photographic process may be employed.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

Queries and Answers.

170 LUCY D. BALDWIN.—I wish to ask if ever reports of unpleasant action of amidol upon hands and fingers of the operator have been reported, and what, if any, is the best remedy for such evil? I have used amidol with signal success, and am well pleased with it. In course of my operating I noticed at times itching of fingers, and little inflamed spots, but, as you will remember, ascribed them to uranium nitrate, which at that time I used very extensively for the toning of bromide prints. After being assured the uranium was not the cause, I thought it possible that by handling wild flowers, fingers and hands became inflamed partly by a possible poisonous substance, and aggravated by the use of amidol.

But itching and inflammation continued with all precautions used. A later diagnosis made me believe it a case of ringworm.

The itching of my fingers was something terrible. The application of acetic acid, and abstaining for some time from the use of amidol, I recovered enough to be able to work.

About a week ago I had a large lot of negatives to develop, and wanted to develop them particularly with amidol. The job took between four and five hours, during which time my hands were almost constantly in the solution. Before night came my hands were terribly inflamed and I suffered the most excruciating pain. I felt, though, as if it would be a relief to break off every one of my fingers. After two sleepless nights, and the loss of one day's work, the swelling subsided, and the pain ceased.

Amidol has served me so well that I got quite attached to it. But this sort of thing I cannot stand. I will now try metol, which I hope has the same beneficial effects as amidol without the injurious.

Is it not remarkable that after amidol has been used as a developer by so many people and for such a long time, I am seemingly the only one complaining of it?

170 *Answer.*—Your report being so highly interesting at the present time, when almost everybody is charmed with the amidol developer, I will take this method to answer.

As you say, you are the first among thousands, to complain of ill effects of amidol, it is very probable that it is not the amidol which gave cause to complain, but something entirely different. Our new developers are suspiciously looked upon by many, and had any complaints of amidol, para-amidophenol or eikonogen been made by anybody, the case would have been reported publicly, and at once.

When amidol was first introduced I made many gallons filled it up in bottles, and had my hands in the solution for weeks almost constantly during a day's work. The boys of the Scovill & Adams stores had put up thousands of samples of pure amidol, but neither of us had noticed effects as you describe.

Now let us reason! You complained first of inflamed fingers and itching about the time uranium was used so extensively, and during that same time you were industriously engaged to photograph wild flowers gathered in forest and field of Virginia's mountains. It is not only psssible, but highly probable, that, when gathering them, and your hands had come in contact with "clematus erecta" or "rhus toxicodendron," which abound in your country. One leaf or a stem of either of these poisonous plants, among the flowers afterward photographed in the studio are very likely the source of the evil.

The poisonous effects of rhus toxicodendron will appear occasionally in secondary forms, and the reappearance of the disease may have been aggravated by amidol, but most certainly it has not been its primary cause.

Under certain circumstances most harmless substances may become injurious and objectionable.

Laundry women changing soap for one more alkaline find their hands to be attacked. When the alkaline toning bath was first introduced many operators complained of the ill effects of the alkali; hyposulphite of soda makes the fingers sore, especially in winter time. In the times of dear old pyro, I used to wash off the fine brown stains with oxalic acid without the least injury to my hands, while others on the touch of the same acid got frightfully sore fingers.

Were it possible amidol is the cause of your trouble, I pronounce yours a single or an exceptional case. The tender skin of a lady's hand may be more susceptible or more sensitive to its influence, but to my mind even that is doubtful.

In time you will overgrow such influences as you think have been injurious to you.

When you first went into a ruby lighted dark-room, you could see nothing, I remember quite well. Now you are used to the Peerless lantern, and to work under its light is pleasant to you; you have become familiar with the ruby light, and so will you with amidol.

I am glad to see you adhering so faithfully and justly to amidol; it is indeed the best developer extant, and will reluctantly discard it for something like it, the *metol.*

To be candid, metol is the substance I can least recommend to you. In the first place it is productive of harsh and over-intense negatives, while those developed with amidol are soft and of wonderful detail. And of metol numerous complaints are coming daily describing its effects upon fingers the same as you ascribe to amidol.

Is it possible you have by a mistake of your dealer worked with metol instead of the peerless *amidol?*

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BRIGHTER THAN EVER.

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Issued every Friday.

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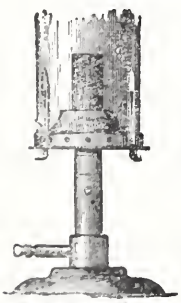
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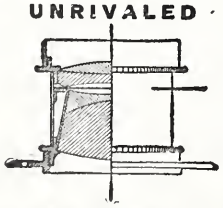
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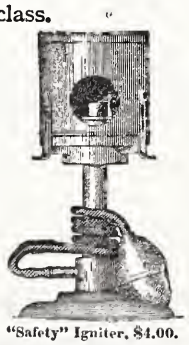
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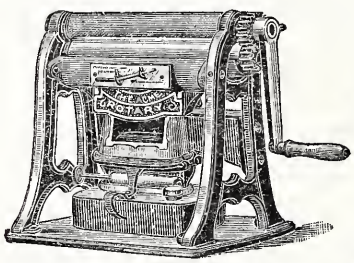
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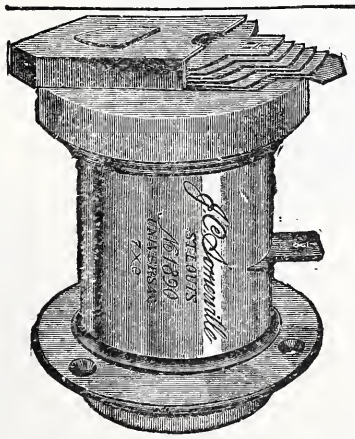
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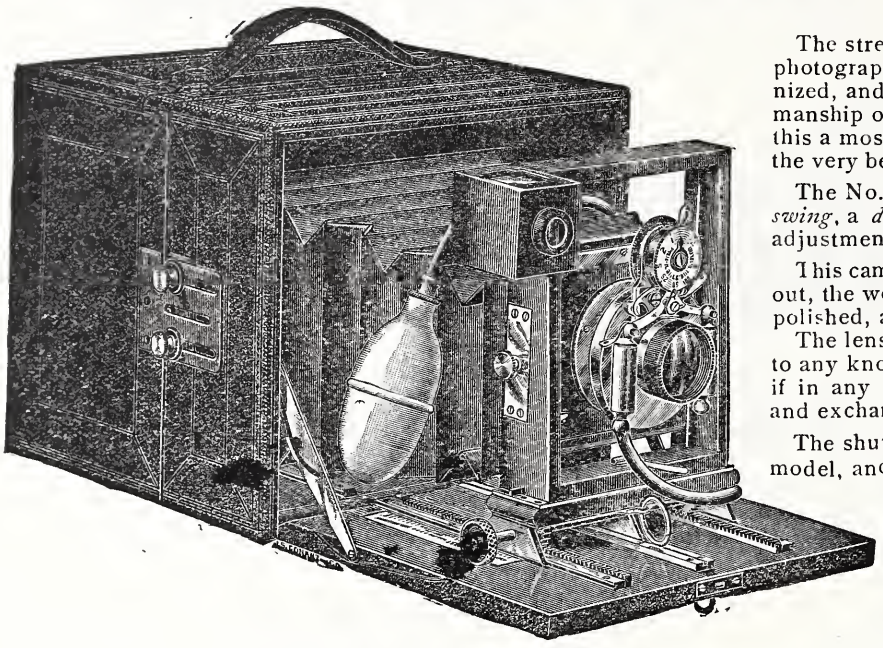
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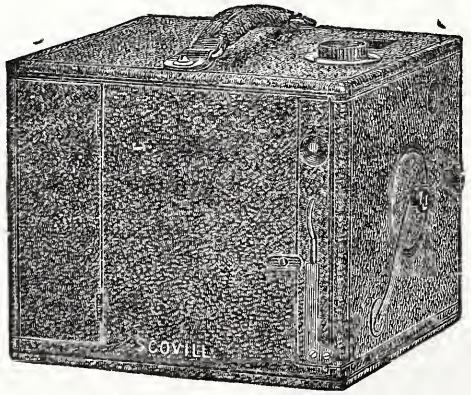
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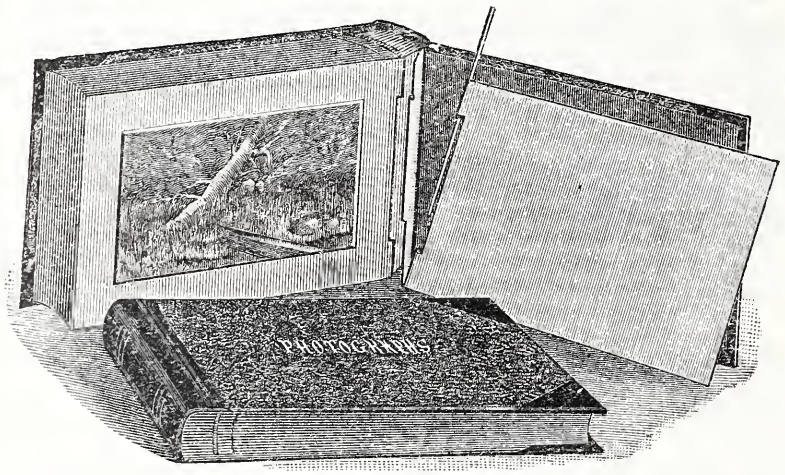
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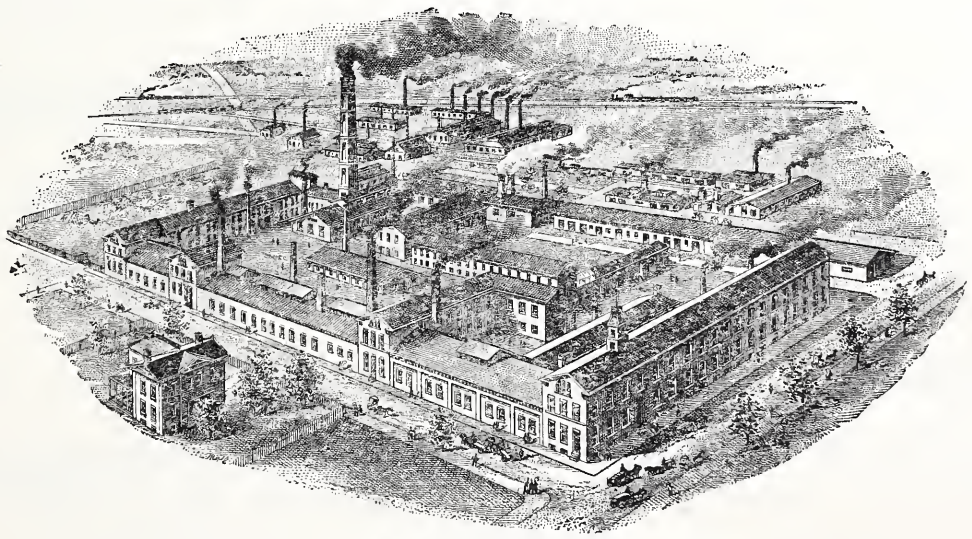
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FRANKLIN, PA., Sept. 29, 1893.

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DEAR SIRS.—I received sample of your paper and put it in with other paper (———) that I have been using for some time, and gave it the same treatment—combined bath—and must say your paper far surpassed the other in almost every way. The whites were especially clear and the blacks of good depth and clean. Must say we like your paper *very much*, and, if I can make any converts for you, I will cheerfully do so. Very respectfully,

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J. C. FIELD, Tampa, Fla.

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A. E. RAYMOND, Vermillion, N. Y.

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B. F. VANCE, Bluff City, Tenn.

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C. MURNA, Holstein, Ia.

Received sample Perfecto paper sent me, and gave it a trial. Will say that it beats anything I have ever tried, and, if it is as permanent as albumen, I can see nothing more to be desired in a printing-out paper.

C. R. OSBORN, Coldwater, Mich.

I like your Perfecto paper. It is very fine. It works like albumen.

J. V. DABBS, Fort Scott, Kans.

I have tried your new Perfecto paper in my business—a couple samples sent me by Messrs. Weister-Meek Co., Portland, Ore.—and am delighted with it for coloring upon. It is susceptible to a softness of tone and retains the brilliancy of color better than anything I have yet tried, and I have been in the photo porcelain business for over five years.

WM. A. TREFFENBERG, Portland, Ore.

I have tried your paper, and I must say the results are beautiful. I also find the paper easily manipulated, and I think that hereafter I will use Perfecto exclusively. I have used several—or, rather, have tried several different makes—but have found none so easily manipulated, and, most assuredly, none that gives such satisfactory results as your Perfecto paper.

L. D. SIMMONS, Natchez, Miss.

I have tried your Perfecto paper, and it is out of sight. My father (Booneville, Mo.) also tried it, and will in the future use Perfecto. Enclosed find P. O. order for a gross cabinet Perfecto paper. Please send by return mail.

L. S. EDWARDS, Rochepoit, Mo.

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W. G. MANDEVILLE, Lowville, N. Y.

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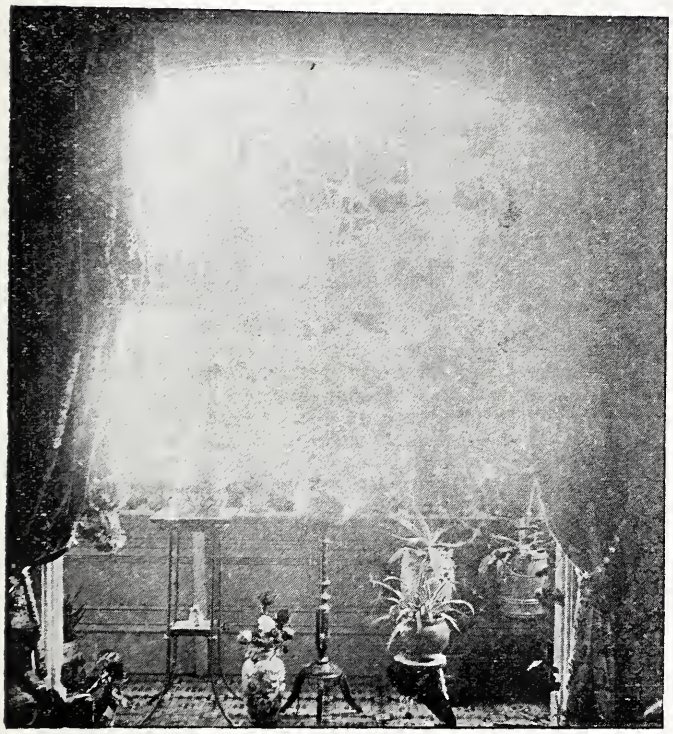
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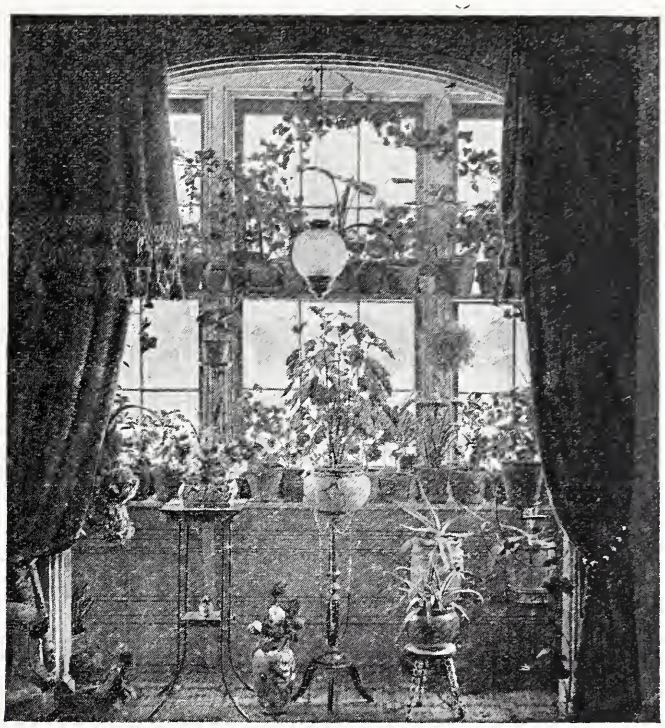
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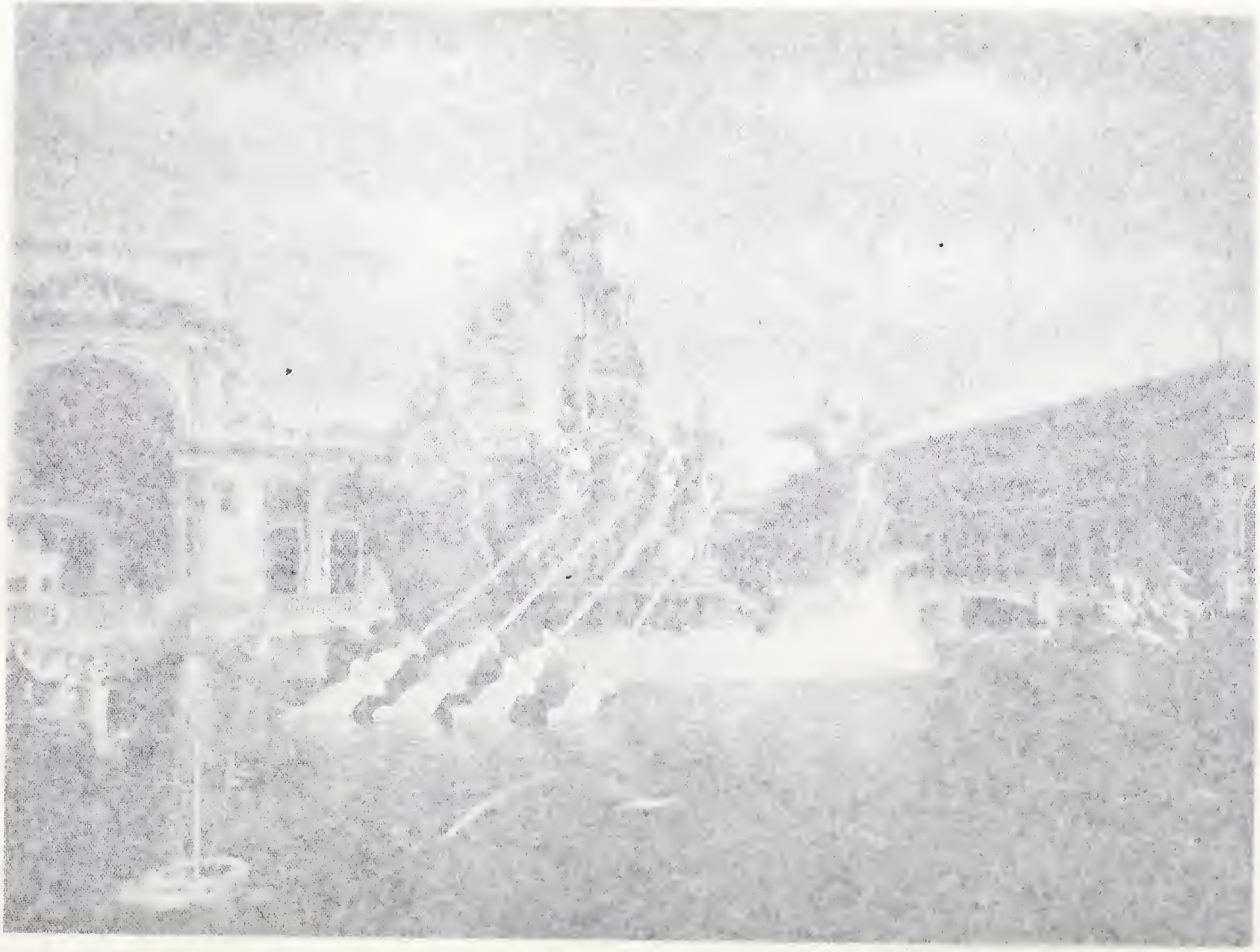
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THE COLUMBIAN FOUNTAIN.

PHOTOGRAPHIC TIMES

COMBINED TONING AND FIXING BATHS



F. D. Arnold Photo.

THE COLUMBIAN FOUNTAIN.

THE PHOTOGRAPHIC TIMES.

VOL. XXIII. DECEMBER 8, 1893. No. 638.

THE COLUMBIAN FOUNTAIN.

WE take considerable pleasure in presenting our readers with a fine photograph of this beautiful creation that attracted so much attention at the recent World's Fair. The sculptor, Frederick McMonnies, is an American by birth. The central idea of the fountain was an apotheosis of modern liberty—Columbia enthroned on a triumphal barge guided by Time, heralded by Fame, and rowed by eight figures representing the Arts, Science, Industry, Agriculture and Commerce. The photograph is by the World's Fair Official Photographer.

COMBINED TONING AND FIXING BATHS.

THE advisability of employing solutions which will at the same time tone the print to the desired color and dissolve out the soluble silver chloride is, apparently, still open to question.

The ease in working and the saving of time are two important items that appeal to many and induce them to adopt this system. At the same time the serious question of permanency has arisen and it behooves us to be careful, when employing these combined baths, that we are not, for the mere sake of saving a little time and trouble, making pictures which in a few short years we shall be sorry to own to the authorship. We have been led into thus thinking by an article which appears in a recent number of *Photographische Wochenblatt*, in which Herr Gaedicke makes the following remarks:

The danger of our present combined baths is in the finely divided sulphur, separating from the hyposulphite of sodium by the action of citric acid and alum, especially when the solution is exposed to the air. The brown or black sulphide of silver thrown simultaneously down has no influence upon the permanency of the print, as has been shown by the following experiment:

A well washed print was covered on one part with freshly precipitated sulphide of silver, and another with freshly precipitated sulphur. The sulphide showed in effect after some length of time, while the picture portion under sulphur had visibly bleached in some parts and entirely eaten up in others.

The combined bath is endangered by the action of citric acid and alum, for they both separate sulphur from the hyposulphite of sodium.

When we subject the other ingredients to investigation the sulphocyanate and the lead salt might be looked at with suspicion, but sulphocyanates have long been used in toning albumen prints, without giving the least cause for complaint. Hydro-sulphocyanic acid is far less easily decomposed than hyposulphite of sodium, and all sulphocyanates have the advantage of forming, with gold, permanent combinations, while other gold baths precipitate the precious metal in a short time.

The action of lead in the combined bath is but physical and does not enter the picture at all. With the presence of lead salts, precipitated silver is in quite a different molecular condition from precipitates when lead is absent. When a precipitate of silver chloride is in a milky condition, a mere modicum of lead salts makes the particles of chloride adhere to each other, and the precipitate speedily settles.

As we have stated, the lead salt does not act chemically, but physically only, and the citric acid and alum are the only dangerous substances in the combined bath.

To obtain good tones upon collodion aristo paper, acidity is a necessary condition, and as citric acid has proved to be undesirable, a research has been made to obtain a more satisfactory acid.

Boracic acid is comparatively weak and sometimes takes the part of an acid and at others that of a base; it however, appears to act well in the following formula:

Distilled water	1000 c.cm.
Hyposulphite sodium	200 Gms.
Boracic acid	30 Gms.
Nitrate lead dissolved in water	15 Gms.
Sulpho-cyanate ammonium	20 Gms.
Solution of ter-chloride of gold, 1 : 200	60 c.cm.

After mixing, a black precipitate of sulphide of lead will separate, settling within twenty-four hours, but there is no trace of a sulphur precipitate.

The bath is clear and free from odor, but after repeated use throws down black sulphide of silver, as with the ordinary hypo bath.

A freshly prepared bath tones very rapidly. In order to keep it under control after being repeatedly used, fresh solution is added from time to time.

It is essential to neutralize the original acidity of the paper. Prints should be washed well, first in pure water, and then in water containing 1 per cent. of aqua ammonia. After a third and fourth washing the prints will be quite neutral. The bath tones in from four to five minutes ; the picture first turns yellow, changes to a reddish-brown, and finally to a beautiful violet. After drying, the tone changes to a bluish hue, for which allowance should be made.

The temperature of the bath should be about 15 R. When colder the process goes on much slower, and when above that temperature the film is liable to peel off.

Professor Valenta does not share Herr Gaedicke's opinion regarding the efficacy of boracic acid, and in *Photographische Correspondenzen* asserts that he has thoroughly investigated the action of boracic acid upon aqueous solution of hyposulphite of sodium and nitrate of lead, combined with chloride of gold, and has come to the conclusion boracic acid acts exactly like citric, only very much slower ; the hyposulphite of sodium is decomposed, sulphur is separated, which in *statu nascenti* combines with the lead of the nitrate of lead, forming a voluminous precipitate which settles down after several hours' standing.

He affirms that he has proved by experiment that this separation of sulphur is the cause of combined toning and fixing baths containing boracic acid acting more rapidly, than those without it. Sulphur toning must then take place to a much greater extent than gold toning, and pictures toned that way cannot possibly be more permanent than others.

His own toning bath consists of

Water	1000 c.cm.
Hyposulphite sodium	200 Gms.
Nitrate of lead	10 Gms.

And to each 100 c.cm. of the bath 5 c.cm. of a 1 per cent. gold solution. Some chloride of silver collodion paper tones speedily to a purplish brown, while a pure purple is attained after a considerably longer time. With 3 per cent. boracic acid in the solution rapid toning is promoted.

From these controversial statements it becomes evident that nitrate of lead is, after all, a powerful factor in the combined fixing and toning bath, whether its action be chemical, physical, or both. Moreover, it becomes certain that the larger the quantity of the lead salt, in a certain quantity of solution, the more rapidly will the toning process proceed, so excessively rapid, in fact, that it appears almost impossible for the fixing agent present to do its work. Small quantities of lead, say 1·5 Gm. to a litre of the bath, has a desirable action, and allows the gold to precipitate, but when as much as 10 and 15 Gms. are added to the same quantity of solution, the results are easily imagined. Rapid toning, sulphur tones (whether gold be present or not), and an imperfectly fixed print. The consequence of all this is, of course, a transmutable image.

ESOTERIC PHOTOGRAPHY.

In another column will be found a few remarks on the Photographic Salon recently held in London. Our correspondent, Mr. H. A. B. McCulloch, gives it as his opinion that what is called naturalistic photography corresponds to some extent with the impressionist art in painting.

Probably there is no subject connected with photography upon which so much has been written and said, and regarding which there is so much diversity of opinion.

It is curious to find how many there are who still adhere to the opinion that there never was, is, or will be any art in photography, but that a photograph must always remain a mere mechanical production, its excellence being dependent upon by the amount of technical knowledge possessed by the operator. For instance, *The Star*, an English daily, says, "To turn from these drawings to the photographs in the Dudley Gallery is to be confronted anew with the folly of the men who call their exhibition the Photographic Salon. One of their objects, they announce boldly, is 'to strengthen and advance the position that photography is making for itself among graphic arts.' There could be no greater absurdity. Photography may advance and develop and progress; it may have in store for us surprises and inventions innumerable, but can never be ranked with the graphic arts. . .

THE GETTY CENTER

To talk of the drawing made by the sun on the prepared plate is a sad confusion of terms; to vaunt fidelity to nature as proof of the artistic possibilities of the camera is to misunderstand at the outset the very meaning of art. 'Nature is usually wrong.' Whistler says somewhere: 'Is it for the camera to set her right?' A photographer, like Mr. George Davidson, may display much feeling and discrimination in his selection of views to be photographed; but how can he, dependent as he is upon a machine and not upon himself, develop that genius for selection which is exactly what makes the Japanese artist so great? As photographs, many of the prints in the collection deserve all praise. Mr. Davidson and several others show what can be done with good printing, coarse-grained paper and pretty frames. But they are not works of art, graphic or otherwise, and never will be."

It is certainly a pleasure to turn from these remarks to the more favorable opinions of photography contained in *The Studio*, an English magazine that circulates among, and is largely contributed to by artists. Here we find the following:

"The exhibition just closed has done more almost than any previous one to prove that photography allows the artist free play for his own individuality. By using the lens or a substitute for it, in such a way as to produce a special emphasis or generalizing effect by the methods of exposure and development, and the choice of printing either on fabric or rough paper, or the usual paper, a worker, or, as he should certainly be called now, an artist, may imprint his own personality to an astonishing degree upon his work. The value of photography as a medium for artistic expression is now established for ever; it was a battle won without fighting. The great delicacy in the gradation of tone obtainable by photography; its ease in securing ærial perspective, such as effects of twilight and mist of atmosphere and distance; its ability to fix the positions and forms of such rapidly changing objects as moving water or clouds; its rendering of actual things with perfect fidelity, and its adaptability, have naturally won over all the artists to its side. But though an objection has been made to its fatal facility for producing indifferent work, in that respect it is only on a level with all other arts, and the real artist remains distinct from those who possess no artistic ability or intuition."

But there is another point besides this facility for producing indifferent work. It is the possibility of obtaining by a mere fluke an effect practically the same as that obtained by the artist who has employed his artistic abilities and technical knowledge to that end. True it is that such occurrences are by no means frequent, but it is nevertheless certain that there are many men at the present day who have obtained a reputation and many medals through some photographic effect, obtained more by chance than anything else. Some of them are cute enough to remain content with their one success, but others, in endeavoring to repeat them, fail ignominiously, their real ability becomes apparent, and their reputations burst like a bubble.

The men who must succeed, and by their work demand the title of artists, are those who by esoteric means can stamp their own individuality upon their work without going to outrageous extremes, as many make the mistake of doing As T. W. very pertinently says in *The Studio*, "while critics are discussing if there be Art in Photography, photographers are settling the matter by themselves."

EDITORIAL NOTES.

According to R. E. Liesegang the stains produced by paramidophenol can be removed by soaking in oxalic acid and exposing to sunlight for an hour or so; or better still is the use of a concentrated solution of sodium sulphate. Pyro stains can be removed by citrate of tin. Amidol but rarely produces stains, but these, when they do occur, can, it is said, be removed by the citrate and acetate of tin. These two agents are solvents of gelatine, so that they must be used with care in removing stains from gelatine negatives.

Sir Robert Ball, the eminent astronomer, relates the following story of the illustrious Fraunhofer, who did so much for spectroscopy: "When a boy, Fraunhofer was employed by a glazier at Munich, and by some misadventure he was buried in the ruins of a house which fell during certain alterations proceeding in the town. When the king heard of this accident he went direct to the place and urged on the men who had come to the rescue. The lad was, happily, found unhurt under a beam which had protected him. The king in his joy at the escape of the boy gave him his purse. Young Fraunhofer threw his cap into the air and cried, 'I will no longer be a glazier, I will be an optician!' whereupon the King directed that he should be taken charge of and thoroughly

educated. Such was the beginning of the man who has given his name to the lines in the solar spectrum."

A WRITER to *The Cape Times* asserts that by immersing a dry plate in the developer before exposure, a greater sensibility is obtained. He immerses the plate for five minutes in an ordinary hydroquinone developing solution, and then places it, without ever rinsing, in the plate holder. An exposure of a quarter of a second gave him a negative full of detail, which, he asserts, he was otherwise unable to obtain.

WE would remind our readers that the *American Amateur Photographer* Lantern Slide competition closes at the end of this month, so that entries should be dispatched as soon as possible. The judges will be Mr. Wm. M. Murray, one of the very ablest lantern slide critics in the United States; Mr. F. S. Herrmann, a young American artist on a visit here from Venice, and Mr. Walter E. Woodbury, of THE PHOTOGRAPHIC TIMES.

MORE than eleven thousand persons visited the 1893 Exhibition of the Photographic Society of Great Britain. This is nearly fifteen hundred more than last year, which previously had the largest number of visitors. This result must be very gratifying to the Society, considering that fears were at first expressed that the Photographic Salon would prove a greater attraction.

THE prize of a thousand francs has been awarded to Monsieur Decaux, by the French Society for the encouragement of industry, for a new photographic shutter.

PHOTOGRAPHY is now acting a useful part in recording the vibrations of buildings. Prof. Steiner's method, according to *Photographic Work*, is as follows: The image of a source of light reflected from an internally silvered glass bead gives on the plate a minute dot of light, which dot becomes a line if during the exposure the plate is moved in one direction. If a bead is attached to a bridge or building the oscillation of which is to be registered, and the plate is moved at right angles to the direction of the vibrations, the frequency and amplitude of the oscillation will be recorded by deviations of the line. In order to obtain a datum system from which the results may be measured, a second bead is attached to something which oscillates at a known rate—as a tuning fork, or a strip of steel—the position of the two beads being such that their images, when at rest, show as parallel lines on the moving plate, or even superimpose. Another method of obtaining data for determining the time of the oscillations is to periodically eclipse the light which illuminates the bead by means of a pendulum vibrating in front of it.

FROM May to October, 1894, Milan will hold a series of sectional exhibitions, one being an international photographic exhibition. This is now being organized by a very powerful committee, and will no doubt be one of the most complete and representative exhibitions yet held. Fuller particulars will be given in a future issue.

THE USE OF MANGANIC SALTS.

MANGANIC salts, especially the permanganate of potassium, are very powerful oxidizers, and for that reason have been recommended for use in eliminating the last traces of hyposulphite of sodium from negatives or paper prints.

Permanganate of potassium is a salt occurring in beautiful reddish-violet crystals soluble in from 15 to 16 parts of water 65 degrees Fahr. The solution has a very fine purple color, and when brought into contact with a great many substances loses oxygen, manganous oxide is set free, and the solution is discolored.

When a few drops of a hypo bath are added to a small quantity of very much diluted permanganate of potassium solution, the purple color will vanish and a copious black precipitate be thrown down. The permanganate has been destroyed, its oxygen has combined with the hyposulphite of sodium, forming the harmless sodium sulphate.

In practice the method might be employed by first superficially washing the negative plate, and then immersing it in a dilute solution (light violet color) of permanganate of potassium. The solution is at once discolored. Bathing the negative in similar solution is repeated three or four times, or till the color of the solution is retained, when every trace of hypo is destroyed.

The permanganate solution must be much diluted; when concentrated, film or paper is attacked and colored yellow.

Permanganate oxidizes organic substances.

The yellow stain yields however to a treatment with organic acids, citric, tartaric, oxalic, etc.

FILMS VERSUS PLATES.

I HAVE been using for this summer's work, or play, if the term is better, the quickest plates I could get, and several sorts of rapid films, especially recommended by their makers for rapid work; and as the use of films, where they can be profitably employed, is an important consideration with all travelers who carry a camera of the medium and larger sizes, I believe that the results of my experience will throw light where it is wanted. And to begin with I will say that no film on celluloid that I have been able to try will compare with good plates for the highest rapidity. I have been photographing running and falling water and using a Thornton-Pickard focal-plane shutter for plates 8 x 10 inches, and I have got fair results with the exposure indicated on their scale as 1-1000 of a second, the plates being those of Dr. Schleussner, of Frankfort, in Germany, and those of Smith, of Zurich, the latter being a little the quicker. As against these I had four samples of rapid films, but with the exposure indicated on the T-P scale, as 1-200 of a second, I got no image that could be developed, and as my shutter would give nothing less I was unable to make a complete comparison. The lens I used was the Ross & Co. Zeiss, Series III., aperture *f*/12. The conclusion which I arrive at, and I used up an entire dozen of the quickest of the four kinds tried, was that the films are of no use for the extreme rapidity which can be attained with plates, and that the focal-plane shutter is useless for the former. Why this should be is a mystery to me, and the more so that I tried also a dozen of the films of Dr. Schleussner, supposed to be of the same rapidity as his plates, and they were worse than the English and American. With time exposures there is not this enormous difference, which fact complicates the problem.



Photo by G. E. Hall. AN OLD CIDER MILL. (IN BERKSHIRE COUNTY.)

As I suppose your readers will hardly be likely to call for English films in face of the quality of those they have at home, I will only mention the results of the trials I gave the Carbutt, Eclipse and Orthochromatic. I had besides my 8 x 10 dozen a supply of both half-plate, which have been in my cupboard since last year. How long they have been coated I do not know, but the former are No. 2553, being some of a lot with which I fitted out an African expedition in the summer of last year, and the latter are No. 2719. Mr. Carbutt can tell, probably, when they were coated. They are still perfectly good, the Eclipse as bright as

ever, but the Orthochromatic (Sensitometer 23) give a slight veil, requiring the use of a little bromide to commence with, but otherwise as good as when I got them. The Eclipse gave me perfectly good negatives with an exposure of a fraction of a second, using the Ross Concentric, aperture *f*/16, practically instantaneous, walking figures not being blurred. The exposure was probably the fifth of a second. Films which I exposed in August and have just developed, at the end of October, are just as brilliant and come up to intensity just as readily as those which were developed immediately after exposure. I shall keep two or three dozen another year to see if they hold out as good as they are now.

All this is very satisfactory, for if we can depend on the films for long journeys and hot climates, and mine went through as hot as one gets it short of India or Africa, the mind of the traveling or scientific photographer may be relieved of a great anxiety, and his back of a heavy burden. I carried with me eight dozen 8 x 10 films, and about ten dozen half-plates, had no trouble with the custom houses and no loss by breakage, and I calculate that I saved the value of half the plates I should have been obliged to carry, by the saving in weight in the porterage and charge for luggage on the railways. As my average breakage when I used to employ glass plates in my distant journeys, Greece, etc., was about 10 per cent. of the finished negatives, the economy is enormous, to say nothing about the wear and tear of temper. I used to make duplicates of everything I did of any importance, and sometimes it happened that both were broken, while with the films which I now use for ordinary work, generally those of Fitch, of London, I can count on having a good negative for nearly every film, and only expose two when I have to take a subject to which it would be difficult to return.

But there is need for more care in the development than with glass, and accidents in handling the wet film happen which would never happen with glass, such as the scratching the gelatine with the finger nail in taking it up from the developer to judge of the density, etc., or not flowing the developer over evenly at the first movement, and so starting development unequally. I have contrived a developing bath for films, in which the film is taken between two shallow bottomless boxes, hinged together and closing on the film, which thus makes the bottom of the bath and need never be moved until development is complete.

The boxes are of wood (any porous wood will do) and are boiled in beeswax so that they are impermeable to all chemicals. The edges are covered with strips of soft rubber and they lock with strong pressure so that the bath is water tight, extremely light, and unbreakable. I used it this summer and it received the warm approbation of all who saw it in use. I made mine with the assistance of a house carpenter, and for travelers can recommend it beyond anything I have ever seen. When not in use it serves as a packing box for smaller films on other material.



Photo by W. D. Welford. Weeks Eng. Co.

"PRIMROSE DAY" IN LONDON.
(Decorating the Statue of Lord Beaconsfield.)

I should always recommend the films with the back mat. It is very difficult in the feeble light of any portable lamp, and often in a dark-room in a small town, if you can find one at your service, to distinguish between the back and front of the smooth-back films, and I have several times mistaken one for the other and exposed my film through the celluloid, and even have spoiled some by laying them face-down in the bath. And the printer constantly blunders by printing from the wrong side. I have not found the Orthochromatic films or plates of any advantage for landscape—they spoil quicker and give a flatter and more monotonous image. And out of a trial dozen of a celebrated make, used on landscape, I only got two perfect negatives, owing to insensible spots on the film, which made transparent spots when fixed. I believe that a somewhat longer exposure and a weak developer will produce the effect of equal-



Photo by Chas. G. Yale.

SHE'S ON TIME.

izing the strength of the different colors in the negative, better than the orthochromatic plate, which besides the other faults I have mentioned, tends to a weak negative. And finally, unless you want rapid work, and where time exposures are practical, I should always recommend the lower sensitometer numbers, as keeping better and giving full density much more readily, besides giving far greater range of exposure without any risk of over-exposing. I use no carrier, but put the films in the holder like glass plates and back them up with the panels of the Eastman film-carrier. Films should be cut exactly to measure because the camera maker always allows a margin for differences, and the film is more likely to fall out of the holder into the camera, when the slide is drawn, than a plate is. I have several times found my film in the camera when I drew out the holder.

The greatest scientific photographic establishment I know of, that of the Italian government for the reproduction of the ancient monuments, working large-sized apparatus, uses now only films. They work up to about 18 x 24 inches.

W. J. Stillman.

PRESENT AND FUTURE POSSIBILITIES OF PHOTOGRAPHY.

[A paper read at the World's Congress of Photographers.]

TO RENDER an account of the present state of photography presents no difficulties whatever, the facts to its credit being recorded everywhere, so that we need only draw from recent sources, (the very ancient facts being, so to speak, contemporaneous,) in order to trace a complete history of photography up to the present hour, passing in review all its methods, all its countless applications.

And while we are desirous of justifying the very title of this paper, the circumstances allow to foot on the past, admitting it to be well known to all of us, in order to arrive at a conclusion as to future possibilities which we are able to foresee, combining the progress of photography itself with the science of to-day.

We are witnesses of a scientific progress so continuous and wonderful, that it would be rash, indeed, even if aided by the most exalted imagination, to indicate the more and more extraordinary facts reserved to us even in the nearest future. New discoveries in the domain of general science will, without fail, result in unexpected photographic inventions, or in applications of photography to uses of which at the present time not the slightest idea can be formed. This is why we cannot approach the difficult subject which has been referred to us without a strong sentiment of our complete inability; in other words, this is a new world, inaccessible, which we set out to explore; we would have to give proof of the fervor of our imagination, of a kind of foresight, more than of true science. We would be well inspired, if we could embark on a journey to the beautiful land of dreams to talk with the fairest fairies, and would return to describe our visions and to explain the most fantastic and most wonderful facts, while now we are obliged to appeal to reason—to the reason of to-day—it may be well understood, for our reason changes its basis at every moment according to the conclusions it has to draw from evidence and facts which yesterday it denied and thought wholly impossible.

But enough of philosophical contemplations to which, however, we were prompted by a prudence which every one will appreciate.

Being thus under the protection of the unforseen, we may now venture suppositions as fantastic as possible, and become prophets without much merit of our own, since the past serves as guide in discovering future possibilities, which, hypothetical as they are, may be admissible, because it has not been shown that we need not doubt anything in the course of scientific facts.

The past belongs nearly exclusively to monochromy, designating thus any method which by the aid of light produces an image of only one color whatever color this may be, and even images with more than one color, obtained by the aid of monochromy, each having its own color.

The progress in this line has been very remarkable; especially since the production of single images took the place of a multiplicity of copies.

First, the paper prints obtained by a chemical process from one and the same plate; then the commercial prints, obtained in a mechanical way with plates prepared with the aid of light, have made photography one of the most ingenious and faithful auxiliaries of the art of illustrating all kinds of publications; in one word, the automatical means of copying the most wonderful and most instructive objects which have ever been imagined. On the other hand, the considerable increase of sensitiveness of the products exposed in the camera to the action of light, together with the invention of the dry film and the consequent portability and easy management, have caused an immense expansion of this art, which now, in every respect, is in the reach of all.

Science has, not less than arts, profited by the progress of photography, which made it an indispensa-

ble aid for its most delicate researches. To prove this we only need observe the excellent and unsurpassed services rendered by it to astronomy, to physics, to the study of the infinitely small, to the rapid and complete registration of all phenomena of light and motion, even of the wonderful rapidity of the minutest organisms. Indeed, it is at the same time an eye and a draftsman. Like the eye, it is gifted with the highest rapidity of vision, so much so, that it sees ojects as if they were stationary, though they are alive with miraculous swiftness. Ah! it even sees what is invisible to the human eye! The stars bear witness—which, though unknown till now, have been discovered by the photographic eye in the depths of space, inaccessible to our most powerful telescopes. The reproduction of ultra-violet rays bears witness—which, for our power of vision, belongs to the invisible.

As a draftsman it is unrivaled; for nothing equals the definition of the lines it traces, the accuracy of the endless details it reproduces, the truth of which is such that it has the force of the evidence of a witness. We may add that it is also an artist. Indeed, thanks to entirely successful researches, we are able to obtain impressions on the sensitive medium by the aid of light of all colors, in proportion to the degree of luminosity of the different colors. This progress was achieved but slowly, and now that it has become an accomplished fact and practically within the reach of all, it gains ground slowly; but this can be only a question of time. Since we are able to sensitize our products so as to render them susceptible to impressions of all colors—giving them a perfect orthochromatism—it must also be possible to render them more sensitive to one color than to another.

This possibility of selection must lead to the production of monochromes corresponding to every one of the principal colors and consequently to the representation of the color effect of an object or of nature, by superposition of the different monochromes, each having its own color.

Therefore, photography, being the most skillful draftsman and lithographer and the most admirable engraver, is also a wonderful expert of colors. But it is even more than this; it is already the artist of entire pieces of art, producing by one single action the colors of objects, much as it impresses the sensitive monochromatic plate.

And, what a really wonderful idea—we begin to trace on the sensitive film the true image thrown into the camera, with its reality of detail and of colors. And this is our present position.

The development during more than fifty years has been nearly completed, because we have succeeded in passing through all possible phases of the art of designing and of its applications, attaining even to the art of painting. We say "attain" by which is not meant that we have advanced in the subject of color-photography to a point which we did not gain in monochromatic reproductions.

The most characteristic name which might be given to the present epoch is that of a new era. We are on the threshold of the art of Polychromy. Indeed, in scientific applications the first step counts most, as perhaps it does in every other field. We have only to direct our attention to what is going on in the electric world, and then to proceed by analogy. There we have arrived at a point at which even the most fertile imagination could not pass beyond the scientific wonders of the future, even if its flight would lead us into the most fantastic dreams. No doubt electricity, with its power, its invisibility, its enormous rapidity of propagation, will become an ally of photography to aid in the creation of unexpected wonders. Already they speak of plates exposed and developed by the aid of an electric current. Edison is at work to construct an instrument intermediate between the phonograph and his kinetograph, which will enable us simultaneously to see the motions of a person, to hear his voice, his words, put in immediate harmony with his gesture, his attitude, the play of his lips and eyes, etc.

This has not only been taken into consideration but can be realized—probably it is realized—at this hour. But this is not all. By electricity similar effects may be and are (why not speak affirmatively, since such is our opinion?) transmitted over a distance.

Thus, using the electric telegraph at the same time as telephone and as kinetograph, we will be able to communicate the complete effect of form, motion and sound to points far distant from the scene of action.

So far we have spoken of the form, which involves the idea of outline and detail of objects. Will a transmission of colors become possible? Will we be able to complete the characteristics of an object by communicating through the electric wire not only its outline, but also its colors?

Why should we not admit this possibility, extraordinary as it may seem? How to get there? This is the point which no one as yet knows, but considering the present state of our scientific resources, based on the divisibility of matter, it does not seem impossible that we may arrive at results of this kind.

Passing in review the history of development of electricity, are we not convinced that about fifty years ago no one would have believed a prophet of the future, foretelling all the present wonders of the spark?

We do not burn the wizards any more, at least in civilized countries, but they are still treated as fools.

Well! We can no longer denounce folly in view of scientific predictions of the most revolutionary character.

All we are allowed to say is this:

"*Who can tell? This may be very well possible.*" Thus we do not engage in a risky dispute which sooner or later will be decided against us by facts.

Speaking of the progress of photography which may be realized, we think at once of a higher sensitiveness, which would allow of instantaneous impressions even with the feeble light of interiors.

The sensitive product, or at least its vehicle, shall have the fineness of the collodion or albumen film.

The apparatus, perfect as it is, still shows an incessant tendency to improvement.

From the standpoint of expanding the field of photography until it reaches every home, the ideal will always be an apparatus essentially portable, of small weight and volume, permitting us to photograph without being observed, and containing a number of plates or flexible films, sufficient for a large number of ouccessive exposures.

The favorite of the future is evidently the flexible film or the very small plate, so that after a sufficient perfection of the rolling apparatus an endless ribbon may be advantageously substituted for a certain number of single plates.

The rolling device lends itself better to a rapid succession of new sensitive surfaces, but its operation must be made more reliable and easier. This evidently is a field for the future.

The future will find enough work in the development of photography, and persons who believe that very little is left to extend its field are badly mistaken.

Well, what is it, they ask? There is the question of colors and saving some perfection in details; that is all, isn't it?

First, in regard to colors, it is by no means a small step forward to bring this branch of reproduction to that degree of perfection which we have attained in monochromes.

If such a great step *has* been taken, inducing us to believe in a possibility of reproducing colors, and proving that the means of direct reproduction of colors exist, it is not less true that all is don with a view of applying it to industrial uses, eithe to obtain simply and easily direct prototypes fron nature, or to multiply polychromes with the aic of these prototypes.

The very day this possibility is recognized anc justified by facts, nobody will do anything but tak polychromes.

But the perfect realization of this hope will no come without extensive further researches. It wil be necessary to conquer step by step, with the aic of successive progress, and no one is able to fore see how many years it will take us to arrive at th perfection of this process. Occupied with thi most attractive study, we may ask what other ap plications remain to solicit our earnest endeavors

Is it not surprising that so little has been don until now, toward employing photography in in dustrial decoration of ceramic and tissue? Anc besides we have everything necessary to pursu this line with success. To the future, therefore, i left an application as important as useful, and w hope that this work will be accomplished in ar excellent manner.

How long before the constables, policemen anc detectives will be provided with detective cameras permitting them to add to their words as witnesse the proof of the crime and of the identity of th criminals.

Though we have now all that is necessary fo this application of photography, so simple and use ful, yet it remains still to be realized.

How long before we think of introducing int our schools and colleges the study of photograph practical enough to enable each scholar of eithe sex to constantly use the pencil of photography according to the lessons of the course pursued for gathering all the souvenirs on their excursion and voyages?

If this could be done, the application of th photo-lens to certain functions would cease to pre sent difficulties.

We have already sounded far, very far, into th depths of infinite celestial space by photographi investigations, but they are less applied to terres trial or submarine uses.

Geology would find it advantageous to verif the symptoms of life in the depth of the abyss aided by a photographic apparatus, combined wit a magnesium flashlight, which may be lighted at distance by electricity. The same might be don below the surface of the water, in depths which n eye has yet beheld, and thus an investigation o submarine landscapes, so to speak, would prov to be of priceless value to science.

We have not yet encountered any impossibility, and the well-known fact suffice to give immediate results of the highest value.

How much remains to be done in regard to the methods and nature of registration?

We cannot form an idea thereof.

Why, for instance, is not the portrait obligatory on the passport? What better proof that this *is* Mr. X. who speaks to you, than the presentation of his duly executed passpart bearing his picture?

On the train, at the hotel, at the public places visited by travelers, at the windows of the telegraph and post offices and of the banks, etc., every one appearing should leave, without his knowledge, the proof of his presence in the shape of an automatic, direct and permanent reproduction.

What an aid would this be for the researches of the department of police, for the proof of alibis, etc.!

We would find no end, would we venture an excursion, be it ever so summary, into the realm of future application of photography.

We would only have to turn to every art, to every science, and say that the drawing of the light is called upon to render them much more valuable services than they can be rendered by any other means.

Until now we are concerned with flat monochromes or polychromes, but it is possible that images in relief may have to rely on the aid of photography.

Already it is used in engraving, either in relief or in impression. We have made by photographic process as well, moldings in relief, still somewhat imperfect, yet it is certain that we will learn the act of producing better reliefs, and on the other hand that we will obtain true copies of round ornaments.

The various trials in this line, known as photo-sculpture, did not give very satisfactory results; yet we have results at least, and to the future belongs the task of more and more perfecting works of this kind.

In short, the question is only how to transform the plane into a relief, and we shall certainly find a solution in a more practical way.

It remains to consider what influence the art of drawing and painting with light exerts on the arts proper.

It is evident that photography teaches to see nature better, to give a better account for the rules of perspective.

Notwithstanding, there are always fantastics. They will have difficulties in freeing themselves of the true representation of their objects as well in composition as in color; yet at the same time they try to use originality and impress the stamp of their personality on their pictures; and, besides, even the color shows a tendency to approach more and more to reality, if we behold true pictures, painted directly by the aid of photography.

Perhaps they wish to turn away from truth prompted by a desire for contrast, and imagine to find color-effects absolutely anti-natural.

This applies to some of them, but the larger number, though led by confirmatory proof to represent truth, are tempted to observe an exactness of colors much as if this question was one of perspective.

Will the art gain thereby? It will in correctness, perhaps it will not in originality. For it is probable that every artist will always have many means of proving his worth by impressing on his canvas the stamp of his personality, which will distinguish it from all the rest.

Notwithstanding photography, Roybet would not cease to be Roybet, and Bouguereau or Meissonier would not be less than what they are.

All we can say is, that as perfect an art of copying as the art of photography must naturally exert a favorable influence on theory and practice of the beautful arts.

We do not understand how it may be detrimental to ideal art, which at all times will be able to assert its rights.

If photography compels it to become more accurate, where is the disadvantage?

Is it for fear of invasion of a certain monotony due to this very excess of accuracy?

It would be the same to say that we might ever become weary of the beautiful works of nature because they are always correct in outline and in effect of light and colors.

In our humble opinion, the ideal, the beautiful art, the art of creation, will gain, not lose, thereby, because the artists not embarrassed by difficulties of composition, will be more at liberty to dart forth into the realm of dreams and pure vision of his imagination. As basis, he will have the infallible guide of true effects rendered by the photographic printing, and nothing will prevent him from embellishing this reality with all the children of his brain.

As a result of the foregoing, we may predict the most brilliant future for the art of drawing, painting and sculpture with the aid of light.

It will ever be useful to all and for every purpose. Nothing seems to exist capable of taking its place, and we cannot foresee how it might ever become hurtful to the beautiful arts, whose most powerful ally it is already at the present time.

Léon Vidal.

COLOR PHOTOGRAPHY.

A CRITICAL DESCRIPTION OF THE LUMIÈRE-LIPPMANN RESULTS.

[Photographic Society of Philadelphia]

AT the meeting of the Photographic Society of Philadelphia, last evening, a communication from Frederic E. Ives, who is at present in London, was read, being a critical account of the Lumière-Lippmann color photographs recently shown in London. Aside from the general interest in the subject, this paper is important because it is the first full and authentic information concerning these results which has reached this country, and because it comes from the pen of one whose own process of color photography—composite heliochromy—has won the highest awards from the London Society of Arts, the Photographic Society of Philadelphia and the Franklin Institute. The paper follows:

LIPPMANN'S FIRST RESULTS.

In the spring of 1882 there were exhibited in the Photographic Exhibition in the Champs de Mars, in Paris, photographs by the Lippmann process of a parrot, a branch of holly, pieces of colored glass, etc., which Alphonse Berget and others declared were true reproductions of the colors of the objects. I could see in these photographs only the colors of thin films, metallic and changeable as such colors usually are, and in some instances not even confined to the colored objects themselves, but spreading over objects that were uncolored in the original. These pictures were also devoid of either whites or blacks, the high lights of the objects being rendered more like black than the shadows. Others, notably Mr. Cameron Swan, who wrote a letter on the subject to the *Times*, noticed the same defects in these photographs, and Captain Abney, who had experimented with the process, found that by varying the time of exposure he was able to make a blue photograph with red light, and *vice versa*, and colored photographs with white light. It was generally admitted that the results obtained by Professor Lippmann did not sustain the claims made for the process, and when it was announced this year that the brothers Lumière had succeeded in so far improving Lippmann's method as to obtain really satisfactory color photographs of natural landscapes, people who had seen the photographs for which such extravagant and inaccurate claims were made a year before were naturally, and very justly, skeptical.

Now, however, the Lumière photographs have been shown in public in London, and, although there is still a certain amount of mystery surrounding them, it is possible to form a truer estimate of their character and importance, and to make an intelligent comparison with another and more successful method, based upon quite different scientific principles.

THE NEW SPECIMENS DESCRIBED.

The Lumière photographs are about three inches square, and by light reflected from their surface at most angles they have much the same appearance as the French albumen process lantern positives, the high lights of the picture looking like clear glass and the shadows having the appearance of an albumen or gelatine film filled up with a dense dark-colored deposit of silver. It is said that by transparency they are negative images, but those shown are sealed up so that they cannot be examined by transmitted light.

Unlike Lippmann's photographs, these examples show color only when the light is reflected from the surface at one particular angle, and for that reason the colors are not "changeable." This in itself is really a very important improvement, although it carries us farther away from instead of nearer to the popularly desired conditions in color photography. It is, indeed, a significant fact that real and undoubted improvement intensifies instead of lessening a characteristic defect of the original Lippmann photographs which some writers have not hesitated to say would "undoubtedly" be overcome—namely, the inability to see the colors at all angles.

If the pictures were uncovered the critical angle would undoubtedly be perpendicular to the surface of the plate, but it would then be necessary to provide some means for illumination and vision in precisely the same direction. It is also necessary that the source of light be large enough to illuminate the entire surface of the photograph equally with parallel rays, and it should be seen by parallel rays coming from it. A rough approximation to these conditions is secured by coverering the picture with a shallow prism, and then examining it by the reflected light of a sufficient expanse of even white or gray sky, holding the picture at nearly arm's length from the eye. More satisfactory results could doubtless be obtained by means of a special device, which could be used like the stereoscope or the photochromoscope. It would be quite easy in this way to exactly fulfill the theoretical requirements for illumination and vision, and at the same time to magnify the picture, which must now be made to occupy only a very small angle of vision in order to be seen all at once.

The pictures are also projected upon a screen by means of the megascope or aphengescope lantern, and in the absence of a special device for examining them by daylight this is the only really satisfactory way of seeing them. It is, however, necessary to employ a powerful electric arc light in order to project them with satisfactory brilliancy up to even 2 feet diameter, as compared with 10 feet, or twenty-five times greater area, for the photochromoscope pictures with the same light.

(To be continued.)

THE LONDON PHOTOGRAPHIC SALON.

IN compliance with your request I visited the Photographic Salon at the Dudley Gallery last week. Before giving you my impressions of the Exhibition I should like to say a word or two as to the intolerable heat of the place on the evening of my visit. The long room was lighted by two closely parallel rows of gas jets running its whole length, and through want of proper ventilation was almost unbearable.

I certainly hope that the committee will, on their next exhibition, so arrange matters as to remedy this, as it is not conducive to the comfort of those who visit the gallery.

Of the Exhibition as a whole it may at once be said that it is excellent and very nicely hung.

Mr. Van der Weyde is well to the front with five tasteful works, the largest, "Hypatia," an almost life-size study, being much admired.

The following well-known picture photographers are well represented: Colonel Gale, Messrs. H. P. Robinson, F. M. Sutcliffe, Bernard Alfieri, J. S. Bergheim, who sends some nine frames, one, "Penserosa," a clever little alle-

gorical picture of the Watts school; Barons Albert and Nathaniel von Rothschild; Messrs. Bernard Lintott and Rowland Briant.

Mr. Frederick Hollyer has sent three excellent portraits in dark sepia, and has also "Endymion," from a bas-relief by Bates, A.R.A. A Rembrandtesque portrait of Henry Irving as Becket is of Mr. H. H. Hay Cameron's contributions.

If the number of pictures ticketed "sold" is any indication of the success of a certain class of work and workers, then Mr. Ralph Robinson leads in his particular style, which differs from the others chiefly in the matter of rustic mounts and close framing. Mr. Davison and many others also come in this category as regards style of work.

In the matter of representation from foreign countries it is asserted by the supporters of the Pall Mall Exhibition that the Salon falls below the former.

A reference to the catalogue shows that the United States is represented by Miss Farnworth, Albany, N. Y., Mr. L. W. Palache, San Francisco, Mr. Edmund L. Woods, San Francisco, whose "Autumn Morning" is very good, and Mr. Clarence B. Moore, New York. Austria has eight names, India one, Italy two, and Belgium one.

One of Italy's contributors, Count Von Gloeden, exhibits a series of figure studies, undraped, which would prove of great use to painters. I have said that the Salon on the whole is excellent, and nicely hung, but has it reached that degree of artistic excellence its organizers wished and intended? Probably it has; but I think it must remain a debatable point whether the Exhibition has attained the proud position of being the best collection of photographic pictures of artistic merit.

That a strong attempt in this direction has been made is evident at once on entering the room. The first thing that strikes one is the number of dark, subdued, and in some cases even sombre frames. This new departure in mounting, together with close framing, is, to my mind, the distinguishing feature of the Exhibition. It is an axiom—every one knows how important is the work of, and that much taste may be expended in, mounting photographs, and how lack of judgment in this respect will mar the beauty of a good print; but though this is a highly important factor in the presentment of monotone processes it must not be forgotten that the picture itself comes first.

I do not wish to suggest that less attention has been given to the photographic subject, its selection, treatment, manipulation, etc., but would submit that several of the exhibitors, in straining after what they term artistic effect, have bestowed their final efforts upon the framing and mounting of their work rather than upon the pictures themselves.

In a number of instances, it must be admitted that the frames are in excellent taste. At the same time there is a great divergence of opinion on the subject. "A. P.," in *Photography*, writes as follows: "We are persuaded that all these mannerisms of gross mis-focus, outrageous framing, and the like, will never raise photography by one fraction of an inch; they will simply get photographers laughed at."

I cannot agree with this view, however, for, to my mind, what is called naturalistic photography corresponds to some extent with impressionist art, and that the latter has many followers was proved some years ago by the Whistler-Ruskin trial, when fully as many artists supported Whistler as Ruskin.

H. A. B. McCulloch.

FOREWORDS

On Photography as one of the Graphic Arts.

[From Photographic Salon Catalogue.]

Among the monochrome arts, photography seems to hold a place nearer to the copper-plate processes than to any others. Like them, it is a negative process: a plate being produced, from which positive impressions are afterward made. As in etching, the original plate is made by chemical means: as in mezzotint and aquatint, the drawing is in tones, not lines; but unlike any other process, this drawing is accomplished by the action of light without the interposition of the hand.

Although not entirely limited by what is presented before it, the camera is not much used to show its power of invention, being employed, generally speaking, to reproduce more or less accurately what actually exists before it at one time. The way in which it shall do this, however, is a matter that is to a very great degree under the control of the user; to a degree far greater than is usually suspected by either artists, generally, or by casual photographers.

The selection and use of the lens, according as either special emphasis or a generalizing effect is required, the selection and relation of exposure and development, the choice of printing method, including the varieties of surface texture, and perhaps, more than all, an infinitude of devices, selection, and modifications of effects by the skill and knowledge of the handicraftsman in printing; these allow a range of variations in treatment that is amply sufficient for the expression of the worker's individuality or idiosyncracy, artistic and poetical, or otherwise.

Among the chief virtues possessed by photography, as a medium for artistic expression, may be mentioned:

Its great delicacy of tonal gradation.

Its ready securing of aerial perspective, as shown in many cases of twilight and mist effects, and in the rendering of atmosphere and distance.

Its means of fixing the forms and positions of rapidly changing subjects, as shown in the transient effects of moving water and clouds, and in so-called instantaneous pictures generally.

Its giving absolutely faithful drawing and perspective of any subject, however difficult, from an actual as distinguished from an imaginary standpoint.

Its adaptability to very varied classes of subjects, and above all, and through all these qualities, the wonderful naturalness of its results, a naturalness which must appeal to every observer and which is compelling closer study and knowledge on the part of all draughtsmen and painters.

These and many other points might be named, to show the great range of possibilities for the artistic employment of photography.

That photographers at times do not use their process to the best artistic advantage may be true; but, if so, the fault is with the worker, not the method.

The dull diagrammatic prose of the earlier types of work is giving way to a more subtly suggestive style of treatment: and the initial blankness of wonder at its possibilities has been, or is being, gradually replaced by a clearer perception of what it can do well, and can do, for certain classes of subjects and effects, with a perfectness unapproachable by other methods.

Perhaps the greatest curse of Photography in the sense now under consideration is the fatal ease with which indifferent work may be produced by its means. But for the best work, as much artistic feeling, as much technical proficiency, and as much patience and care are required as in any other of the graphic arts: among which, for the intrinsic beauty of its products, it certainly deserves to hold an honored place.

Correspondence.

To the Editors of THE PHOTOGRAPHIC TIMES:

THE photographic trade will be interested in the following decision which has just been rendered by the United States General Appraisers of the Treasury Department, in the matter of the protest of the Blair Camera Company against the decision of the Collector of Customs at Burlington, Vt., as to the rate and amount of duties chargeable on certain photographic films made on collodion, imported by express by the Blair Company nearly a year ago. The opinion is in the language of General Appraiser Ham, and is as follows:

The merchandise in this case consists of cut films or photographic films made of collodion, assessed for duty at 60 cents a pound and 25 per cent. *ad valorem*, under paragraph 21, but claimed to be entitled to free entry as articles the produce, growth, or manufacture of the United States under paragraph 493.

The case was set for hearing May 9, 1893, but, although duly notified, appellants failed to appear and offer proofs in support of the contentions of their protest. It must, therefore, be considered on the record.

Questions as to the sufficiency of the protest in form are raised by the Collector whose action is complained of, namely: (1) That it was not filed in duplicate, as required by Article 930 of the Customs Regulations of 1892, and (2) that it was filed in the name of appellants by one Henry W. Belknap, in contravention of the requirements of Section 14 of the act of June 10, 1890, which provides that protest shall be made by the owner, importer, consignee, or gaent of the merchandise in controversy, it not appearing at the time of filing of said protest that said Belknap was authorized to act. This objection, however, is obviated, since it now appears from the record that said Belknap was in fact the agent of appellants at the time of the filing of said protest, and therefore had authority to act in the premises in their behalf.

As to the other (first) question, it may be remarked that the statute, Section 14 of the act of June 10, 1890, does not in terms require the filing of the protest to duplicate, and hence, without deciding whether the letter of the regulation expressed in said Article 930 would be conclusive against appellants in case of the refusal of the Collector to accept the protest, it is sufficient to say that his consent to accept it operates as a waiver of his technical thereunder.

There are other objections to the protest, but a careful examination shows its claims to be in substance: (1) That the articles subject of it are of American manufacture; (2) that they were exported to Japan; and (3) that they are returned to this country, and hence entitled to free entry under paragraph 493, on the ground that they have not been advanced in value or improved in condition by any process of manufacture or other means. The protest states, among other things, that said articles, consisting of sensitive photographic celluloid plates—

Were taken to Japan, exposed in a photographic camera, and returned to appellants to be developed, by the application of proper chemicals, into photographic negatives, from which lantern slides are to be made.

Said protest further states that—

Without the application of the proper chemicals said plates are of no value; and except that they have been exposed to the light passed through a lens they are in the same condition as exported.

In a letter to J. W. Baldwin, agent of the American Express Company, dated December 10, 1892, appellants state that the articles under consideration are—

Celluloid films, manufactured by us in Pawtucket, R. I., and used for photographic plates, having been sold by us within a few months and exposed by Messrs. Burditt and North (the consignors) in and on the route to Japan. They are returned to us to be developed into photographic negatives, and in their present condition are of no value.

Appellants are bound by their own statements of fact, which appear in the record, and these (foregoing) statements conclusively show that said sensitive plates were sent abroad for a distinct purpose, namely, to be "exposed"; that is to say, to receive upon their sensitive surfaces certain impressions, and that upon the return of the said plates to the United States the impressions so received in Japan were to be developed by the proper chemicals into photographic negatives.

It is evident that the impression received in Japan by said plates is of vital importance, and that it not only changes their character, but increases their value, and that they are thereby advanced in value or improved in condition by a process of manufacture or by other means, thus withdrawing them from the operation of paragraph 493 of the act of October 1, 1890, and apparently relegating them to paragraph 21, as partly finished articles of celluloid.

On the evidence we find as facts:

(1) That the articles in question were imported under the act of October 1, 1890.

(2) That they are articles of American manufacture, exported; but

(3) That they were advanced in value or improved in condition by a certain process of manufacture, or other means while abroad; but

(4) That they are partly finished articles of celluloid.

We therefore hold that the action of the Collector was justified by law and the facts. The protest is overruled and the decision of the Collector is affirmed.

WASHINGTON, D. C.

Photographic Societies.

Society of Amateur Photographers of New York.—There will be a regular meeting of this Society on December 12th, at 8 p.m., when Dr. Janeway will read a paper entitled "Why do Silver Prints Fade?" The question "How shall we Improve the Amateur Photographic Societies of New York" will also be discussed.

A smoking concert will be given about the middle of this month.

Notes and News.

"The success of THE PHOTOGRAPHIC TIMES has been phenomenal," says *Town Talk*.

A building has just been finished at West Point, which has elaborate appointments for photographic work.

A paper in San Diego offers a camera equal to a $25 one and two months' subscription to the paper for $7.

"I have given 'Industrial Photography' a thorough perusal. It is a fine work and full of information."—J. R. SWAIN, Dana, Ind.

"The Photographic Times" is improving with each week. It is the best of its kind. Have you seen it lately? —*The Mansfield Item*.

The Camera Club of Hartford.—An illustrated lecture on the World's Fair, by Lewis W. Ripley, was held at Unity Hall on the 21st instant.

Both the University of Chicago and the Armour Institute will be furnished with a special department devoted to photography.

A. C. Partridge, the well-known photographic merchant of San Francisco, died suddenly of heart disease, November 2d. Mr. Partridge's business will be carried on for the present by E. S. Partridge, executor.

Geo. W. Gibson, the genial proprietor and editor of *The Canadian Photographic Journal*, paid us a visit last week. He reports business in Toronto to be brightening up considerably, and *The Canadian Photographic Journal* is making rapid progress.

Mr. E. Long, of Quincy, Ill., writes under date of November 15th: "It is fifty years last July since I commenced photography and I have been at it ever since, so I believe I am the oldest photographer in the United States who is yet in the harness."

A Great French Telescope.—A large refracting telescope has been placed in position for Dr. Janssen at Mendon. It is a combined photographic and visual telescope. The visual objective is 32·3 inches in diameter, the photographic objective 24·8. Both lenses have a focal length of 66·9 inches. The arge objective will be the guiding part of the instrument when used for photography.

At the recent Convention of the Photographic Association of Canada considerable attention was attracted by the exhibit of solio and enameled bromide papers displayed by the Eastman Kodak Co. The prints were surprisingly uniform considering the fact that they were made from all classes of negatives. Messrs. Horgan, Robertson and Curtis gave demonstrations, prints were toned, mounted and delivered to the photographers to carry home as souvenirs.

W. P. Buchanan is getting out a second edition of his catalogue, which he claims will be the completest and neatest catalogue of photographic material ever published. "We do not care to omit the illustrations of the cameras manufactured by your house," he writes to The Scovill & Adams Co., "as no catalogue would be complete without them."

"Our new book will contain about 240 pages, printed on a new shade of enamel paper."

Next week will be published our GRAND TRIPLE CHRISTMAS NUMBER, which will contain the following: "Santa Claus," photogravure, frontispiece; "Chianli," a picture, by Alfred Stieglitz, printed in five colors; "A Snow Scene," by Mrs. E. Main, printed in steel blue; "From the Wet Process to the Dry," a study, by Charles Scolik, of Vienna; "A Portrait Study," by Friedrich Müller, of Münich; "A Good Class," a pictorial composition, by Lyddel Sawyer; "A Study of a Child," picture by W. A. Cadby, medaled at last exhibit of Photographic Society of Great Britain; "Christmas Photographic Gifts," editorial; "Sulphites in the Developer," editorial; "Editorial Notes"; "Astronomical Photography at the Lick Observatory," by Prof. E. S. Holden, with five illustrations; "Floral Photography," describing the work of Mr. John Carpenter, an English amateur who has made this a special study, illustrated with two photographic floral studies; "The Story of THE PHOTOGRAPHIC TIMES," giving an account of this magazine from its commencement up to the present day, illustrated with fourteen portraits of editors and contributors; "Our Hand Camera Competition," an account of our recent competition, illustrated with six of the pictures sent in by the prize winners and others; "Distinguished Photographers of To-day," being the second article of this series, and describing the life and work of Mrs E. Main, with portrait and snow scenes; "The Fathers of Photography," being the fourth article of this series, and describing the life and work of the late W. B. Woodbury, with portrait; "Orthochromatic Methods in Photomicrography," by Dr. A. Clifford Mercer, with two photomicrographs; "Photography at the World's Fair," by Horace P. Chandler, with four illustrations; "A Curious Experience; or, Photography in the year A. D. 2,000," by Max Madder, illustrated; "Snap Shots in the South; or, the Trials of an Amateur," published by Val Starnes, illustrated; "The International Yacht Race," with illustrations; "A New Use for Old Plates," by C. C. Verers, illustrated; "Aunt Jane and the Camera," by S. F. H. Hewit; "The Spirit of the Famine," a photographic Christmas story, by J. Will Barbour; "Photography for Household Decorative Purposes," by W. E. W., with four illustrations; "Some Holiday Books," illustrated by photography; "The Humor of It," illustrated; "Notes and News;" "Editorial Table"; "Correspondence"; "Our Prize Column," and "Queries and Answers."

40 pages of original matter. **75** Illustrations.

The Editorial Table.

From Mr. H. C. Miller, of Peoria, Ill., we have received another photograph of the World's Fair Administration Building taken at night-time. In this the reversal of the image is still more marked than in the picture we gave with our November 10th issue. In the centre of many of the electric light lamps is a little black spot, showing the position of the electric arc, the light from which hangs so intense has produced complete reversal.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious. The possession of a PHOTOGRAPHIC TIMES Medal will, therefore, be a guarantee of high merit.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Any photographic process may be employed.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

NATURAL RESULTS.

No WONDER many photographs are bad,
No wonder that they often make us sad,
No wonder many photographs are poor,
For great exposure do they e'er endure.

The Queensland photographer, whose bride eloped a day or two after his marriage, is now sorry that when he proposed she did not give him a negative.

Queries and Answers.

171 NEWPORT.—(1) What is the black deposit separating from the combined fixing and toning after having been used repeatedly? (2) How long can a combined bath be used to give satisfactory results and approximately permanent pictures?

171 *Answer.*—(1) Sulphide of lead, sulphide of silver. The chemistry of fixing and toning is exhaustively treated by Mr. J. Harrison in his excellent book on "Photographic Chemistry." (2) If you know the composition of your bath, and know how much gold it contains, you may take it for granted, provided the bath is composed on chemical principles, each grain of gold will tone ten 5 x 8 or twenty 4 x 5 plates. Keep accurate account of how many prints have passed through the bath, and when the gold is exhausted throw it away.

172 ESTELLA L, Kansas.—1. Kindly tell me where I can get complete instructions for using Carbutt's orthochromatic plates. Can they be used with an ordinary background?

2. Can a room be used for a gallery, in a small place, that has a skylight but no side light?

172 *Answer.*—1. Orthochromatic plates require no other treatment than those of ordinary description, with the exception that when in the subject or object much blue or violet prevails, a yellow color screen of appropriate intensity should be interposed between objective and plate.

These plates should be developed in almost total darkness, because of their being sensitive to red, orange and yellow rays.

2. We would rather advise you to photograph by the window of an ordinary room, than by a skylight put in to light the room from above. These lights produce ugly shadows of every projecting part of the face.

173 B. KELSEY.—Do you know of anything to take the stain of amidol developer out of clothes?

173 *Answer.*—Amidol stains can be removed with eau de javelle; hypochlorite of zinc does better, or with hydrochloric acid, if sufficiently diluted.

Try also permanganate of potassium.

174 F. W. D., ST. LOUIS.—I want to fling this question at you.

What is the cause of two or three of my negatives being positives? That's no bull, but a fact.

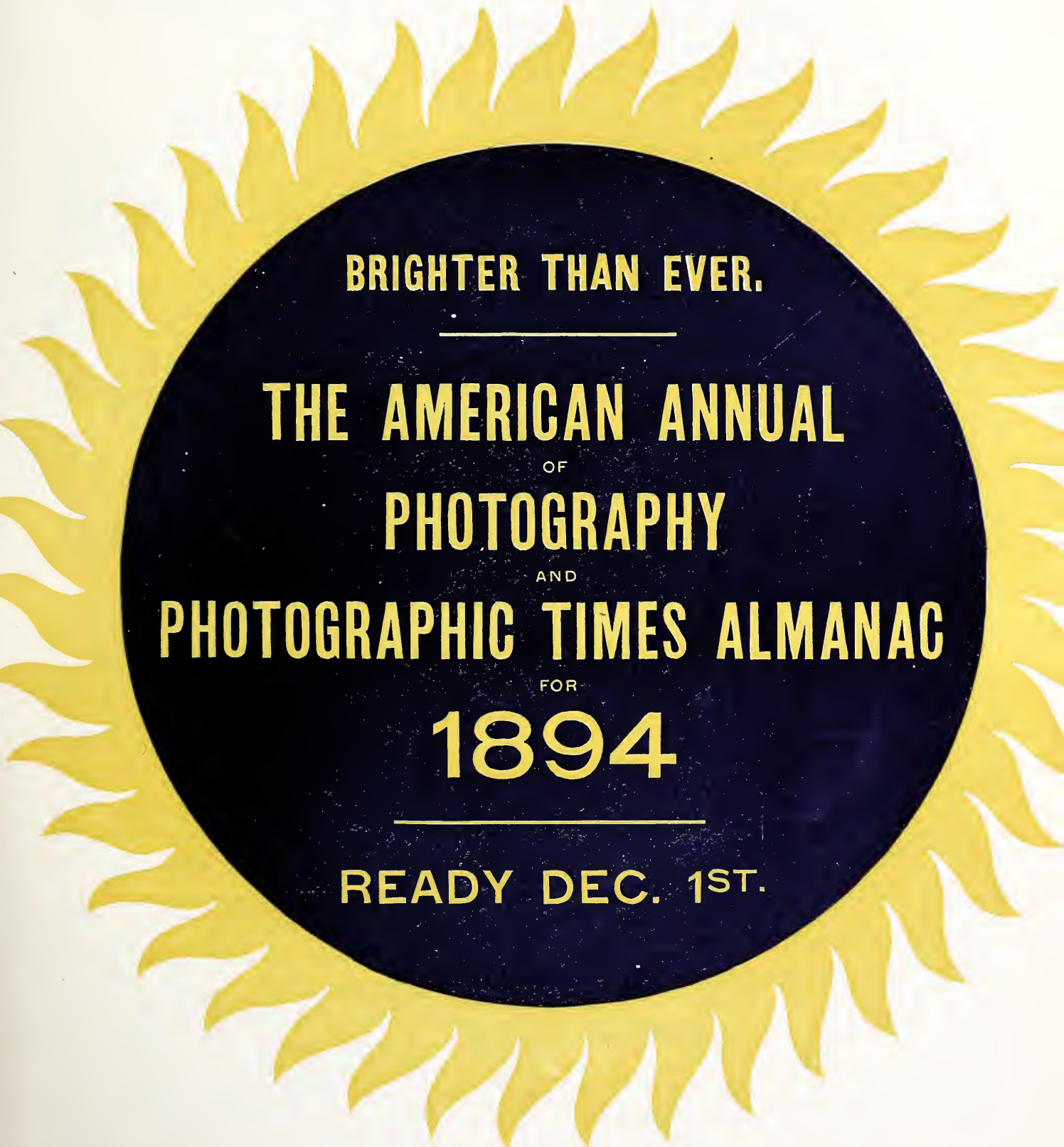
No outside cause that I could know of as the treatment was same for all plates. I used an ordinary camera with Seed plates.

Can you explain or tell me where I can find the solution?

174 *Answer.*—The cause of your negatives having assumed positive character is *over-exposure.* A quick lens, a rapid plate, an unnecessarily long exposure and an energetic developer, produce what is known among photographers as *Reversal of the Image.*

Since rodinal, paramidophenol, amidol, etc., have come among us, we hear frequently of the *reversal.*

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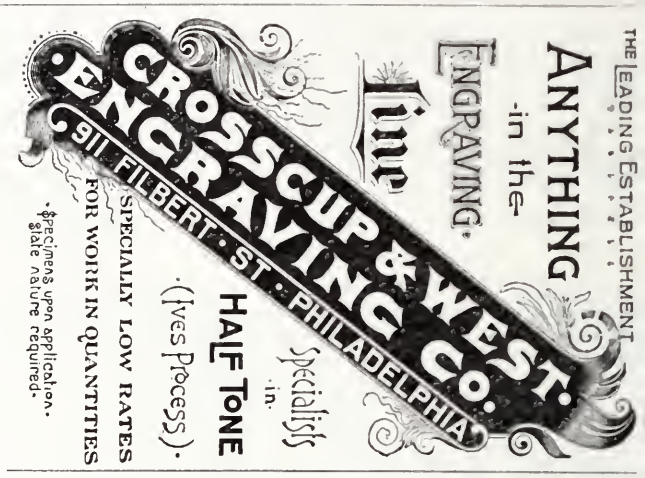
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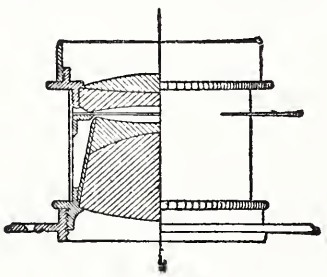
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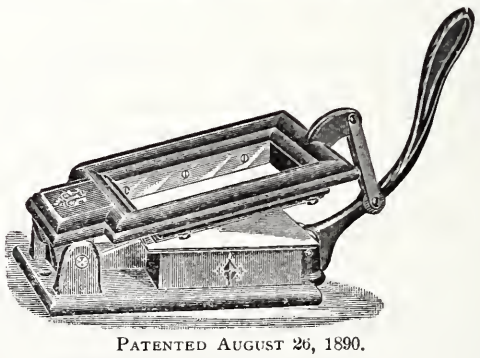
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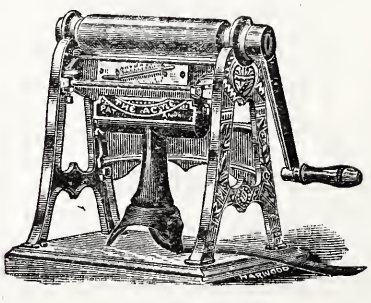
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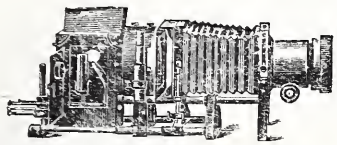
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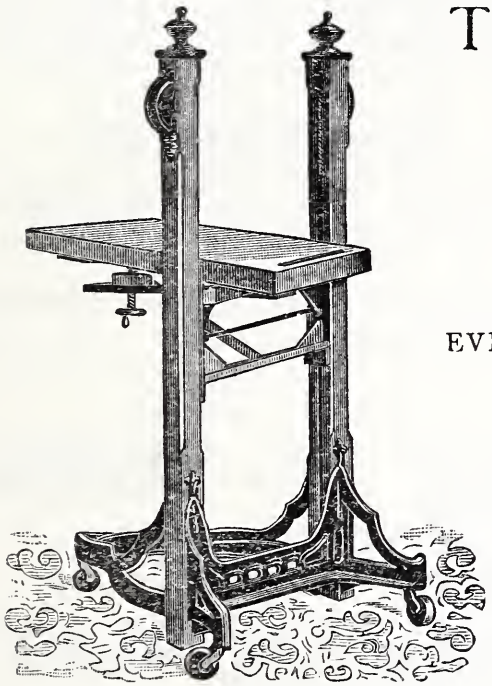
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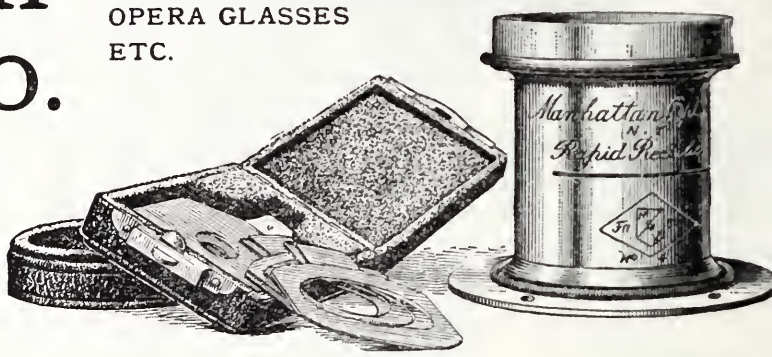
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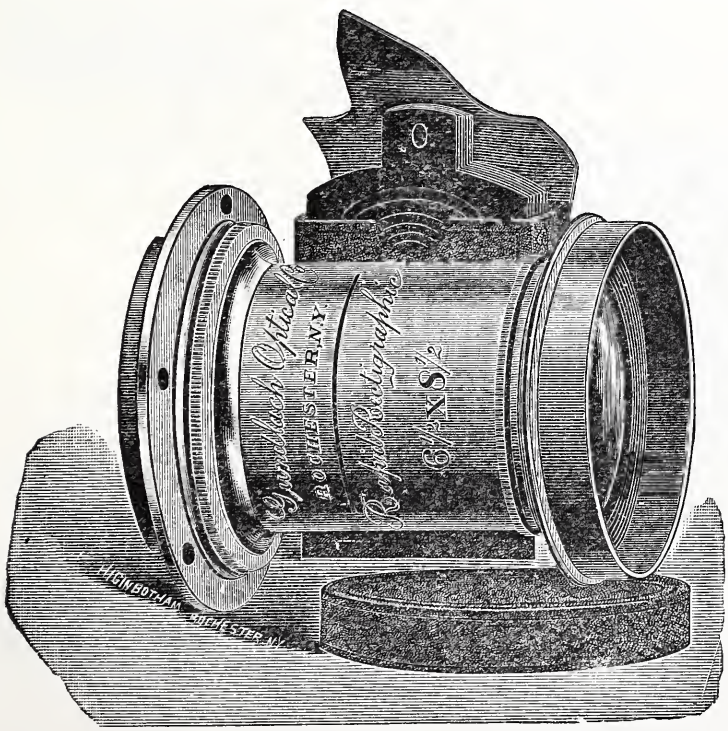
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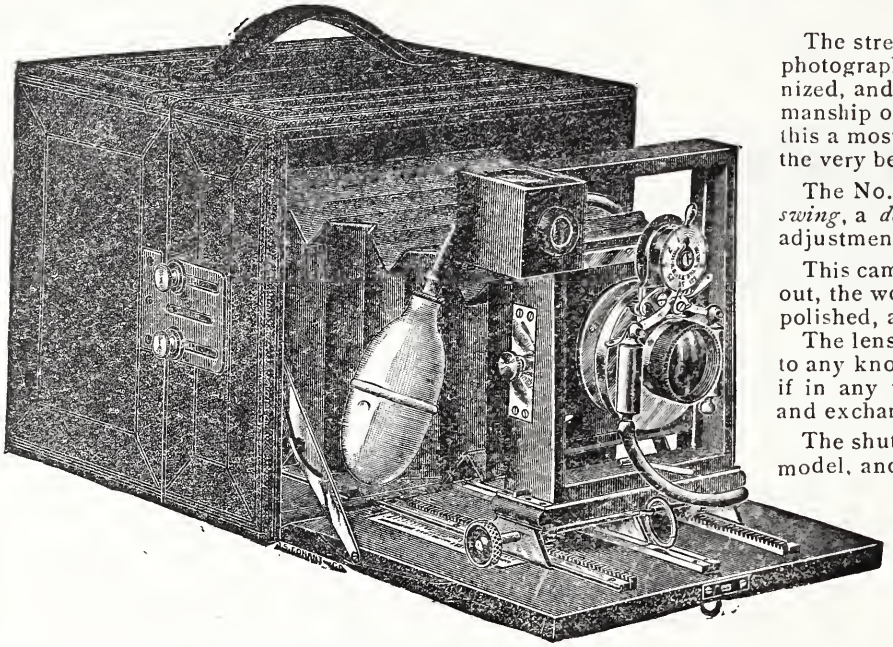
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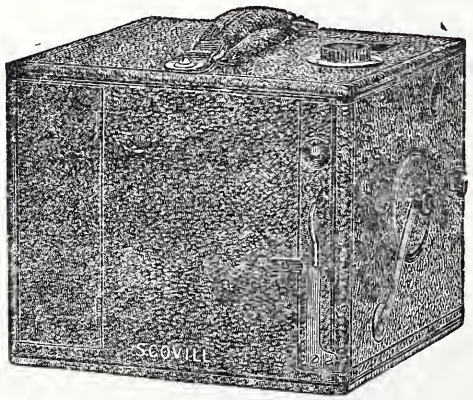
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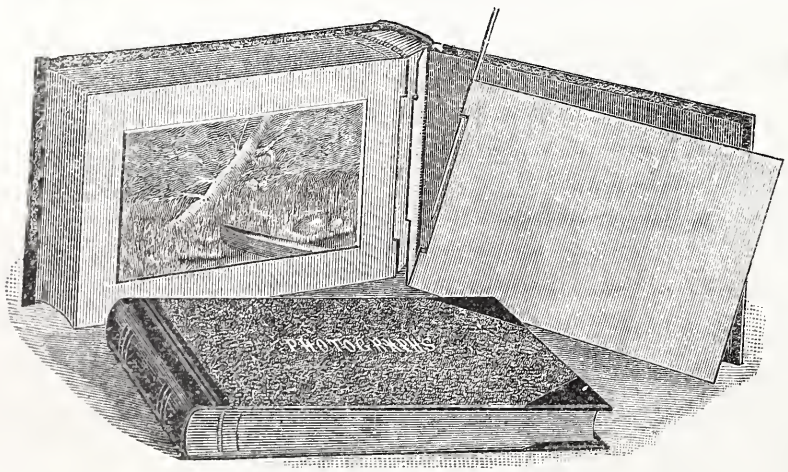
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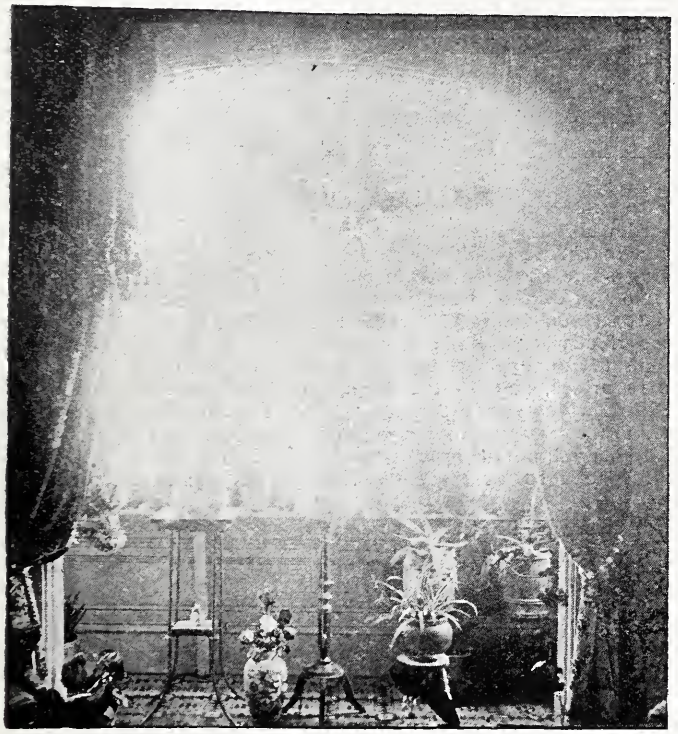
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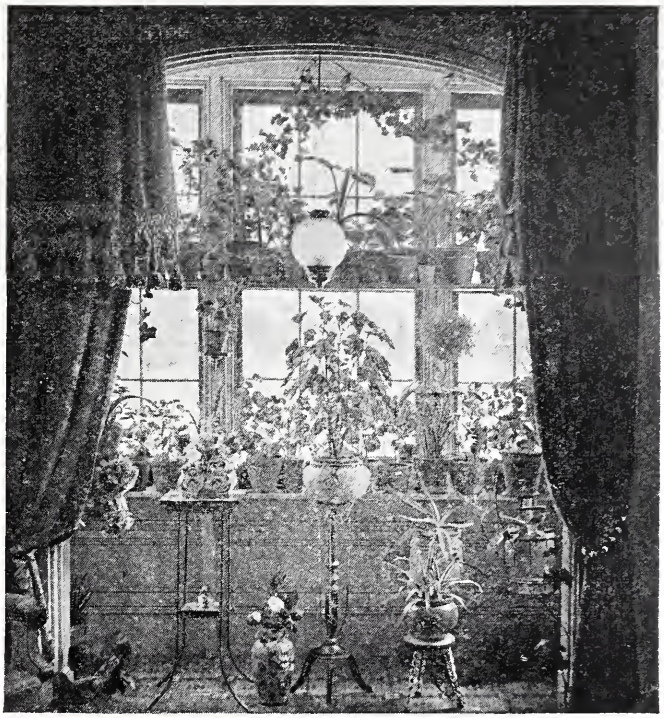
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AND

AMERICAN PHOTOGRAPHER

A WEEKLY JOURNAL DEVOTED TO THE ART, SCIENCE AND ADVANCEMENT OF PHOTOGRAPHY.

ILLUSTRATED

NEW YORK.

THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATIO

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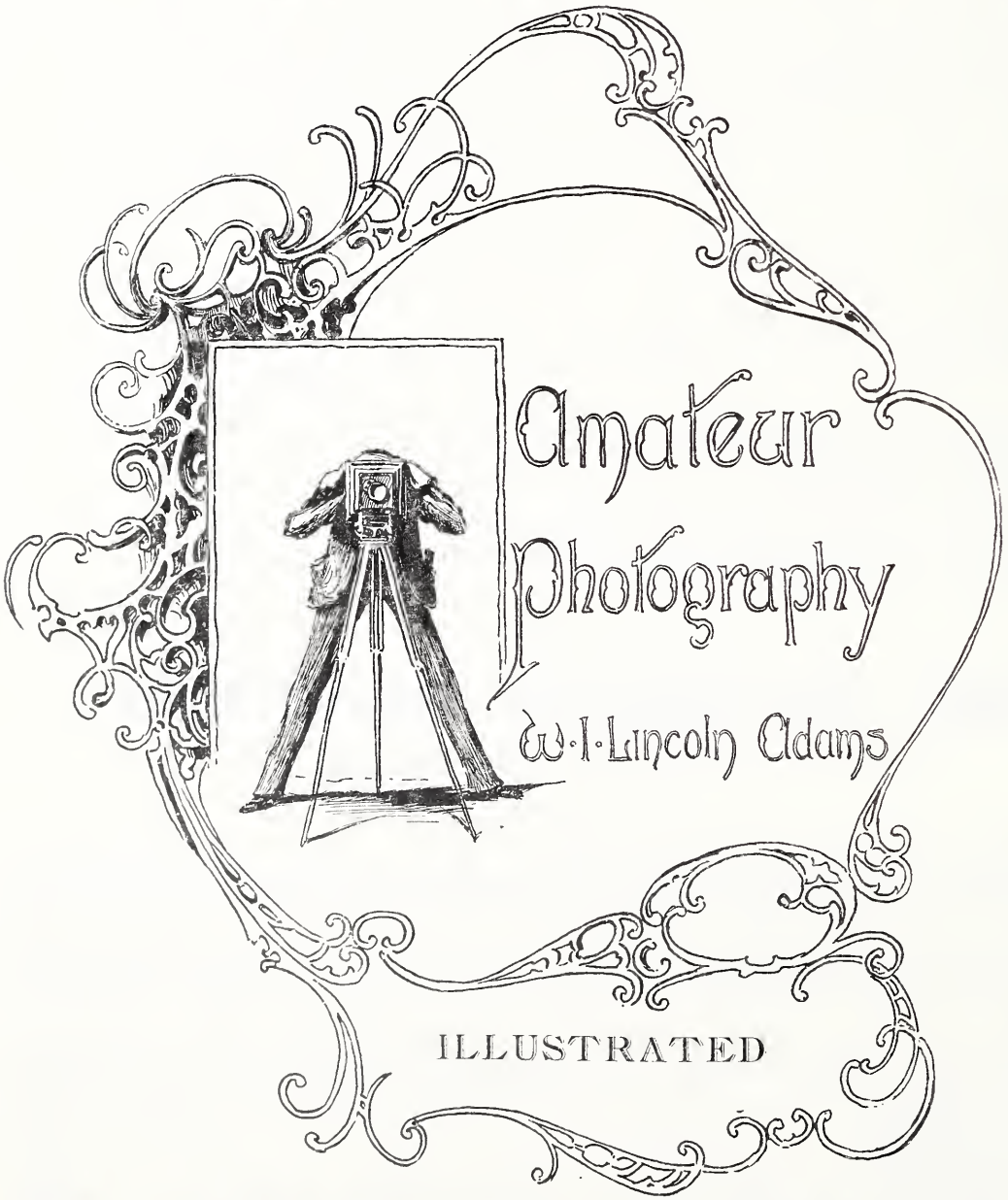
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A MERRY CHRISTMAS TO ALL!

A CHANCEL WINDOW.

'Twas sunrise service, Christmas Day;
The dim, deep chancel gleamed [illegible]
Upon its window, [illegible]
And by the rising daylight [illegible]
The mother and the Blessed [illegible]
The church is silent; hark! [illegible]
Sweet strain of singing [illegible]
While whiter daylight [illegible]
And from the features of the Child
A bright ray beams, as He had [illegible]

[illegible]

PHOTOGRAPHIC CHRISTMAS GIFTS.

THE festive season is once more upon us. There are few who do not like to make little reasonable gifts to their friends and relations as memorials of the occasion when "peace and goodwill to men" [illegible] the greater [illegible] little suitable novelties [illegible] various processes now at [illegible] have been from time to time described in these pages.

There can be no better [illegible] and inexpensive gift [illegible] than a portrait. A photograph [illegible] become rather [illegible] that it is necessary, [illegible] appreciated, to dress [illegible]

[illegible] can very readily be done. By the carbon or transfer process we can make a picture on almost any article. Take a nice vase or a handsome decorated china plate with a portrait on it, [illegible] useful and lasting ornament. The [illegible] can be mounted with chromo and [illegible] and printed upon in the usual manner. A [illegible] or handkerchief box can [illegible]

[illegible] are very much [illegible] a difficult task to [illegible]

A silk handkerchief [illegible] and printed upon. It can then be presented in this state or made up into [illegible] other useful articles. A hundred will readily suggest themselves.

The enamel process is one that is rather difficult to work with, but if properly mastered the most productions imaginable can be produced by burning in photographs on porcelain or other similar materials. Pictures thus obtained, provided no accident happens to the article itself, will probably last hundreds of years.

Even an ordinary silver print can be made into a handsome ornament. All that is necessary for this conversion is to obtain a sheet of bevelled glass, a little smaller than the print, immerse the latter in a warm solution of gelatine, and squeegee it to the glass so as to be in optical contact.

A back is then glued on and a piece of wood attached to form a leg, so as to be able to stand the picture up.

If on a few platinum or other prints neatly mounted on the mounts, attached to each other with silk ribbon or cord, to form a kind of port-



THE PHOTOGRAPHIC TIMES.

VOL. XXIII. DECEMBER 15, 1893. No. 639.

A MERRY CHRISTMAS TO ALL!

A CHANCEL WINDOW.

'Twas sunrise service, Christmas Day;
The dim, deep chancel eastward lay;
Upon its window, dimly traced,
And by the rising daylight chased,
The mother and the Blessed Child:
The church is silent; hark! a mild
Sweet strain of singing nears the door,
While whiter daylight rises o'er,
And from the features of the Child
A bright ray beams, as He had smiled.

Leila R. Ramsdell.

PHOTOGRAPHIC CHRISTMAS GIFTS.

THE festive season is once more upon us. There are few who do not like to make little seasonable gifts to our friends and relations as mementoes of the occasion when we should bear "peace and good-will to all men." The photographer,—amateur or professional,—has the power of creating many little suitable novelties by means of the numerous processes now at his command and which have been from time to time described in these pages.

There can be no better or more appreciated and inexpensive gift to a friend than one's own portrait. A photograph plainly mounted has, however, become rather a commonplace article, so that it is necessary, in order to make it better appreciated, to dress it up in a new garb, and this can very easily be done. By the carbon or transfer processes we can make a picture on almost any article. Thus a nice vase or a handsomely decorated china plate with a portrait in the centre forms a useful and lasting ornament. Many substances can be sensitized with albumen and chloride of silver and printed upon in the usual manner. A whitewood cigar or handkerchief box can thus be decorated and makes a nice present.

Very pretty articles are now made of aluminium, and it is by no means a difficult task to print a photographic image on this substance.

A silk handkerchief is easily sensitized and printed upon. It can then be presented in this state or made up into some other useful article. A hundred will readily suggest themselves.

The enamel process is one that is rather difficult to work with, but if properly mastered the finest productions imaginable can be produced by burning in photographs on porcelain or other similar materials. Pictures thus obtained, provided no accident happens to the article itself, will probably last hundreds of years.

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A back is then glued on and a piece of wood attached to form a leg, so as to be able to stand the picture up.

Even a few platinum or other prints neatly mounted on the mounts, attached to each other with silk ribbon or cord, to form a kind of port-

folio, give, with a little trouble, an aeceptable present.

In an article in another column, dealing with the various applications of photography to household decoration, further information on the subject will be found.

We merely wish to offer these few remarks as suggestions. The photographer will at once see how he can utilize his photographic knowledge, and a number of other ideas will readily occur to him.

A gift, no matter how trifling, is always valued far more highly if the giver has expended his own time and labor upon it.

ALKALIES IN THE DEVELOPER.



LATES prepared by the wet collodion, when affected by light, demand a development dependent upon physical principles. Molecules of silver, —not of the haloid of silver in the collodion film, —but of that derived from the surplus of the nitrate, mechanically adhering to the film, build up the image. The action taking place might possibly be compared with that of the electric force in gilding or plating by the electrolytic process. The effect is external. Development takes place upon the outside of the film, the image rising above the surface as the proeess continues. Physical developers are of acid reaction.

With alkaline developers the action is diametrically opposite. On the application of the developer the image grows downward, and its growth is promoted by the silver of the haloid of silver contained in the film. With the alkaline developer a distinctly chemical action takes plaee, and, by means of the developing agent, the silver haloid is reduced to metallic silver, and forms the image. We are well aware that pyrogallol, eikonogen, paramidophenol or hydroxylamine are *per se* developers. A very interesting scientific fact, but whether or not their actions are forcible enough to lead to satisfactory results, photographicaly, is another question. To assist, promote, or, as it is generally called, to accelerate development, alkalies must be employed.

When alkaline pyro solution is poured upon a light-exposed gelatine emulsion plate, or, for that matter, upon a collodion emulsion plate development begins at once, and the process taking place is expressed by Mr. Harrison by the following equation :

$$2Ag_2Br + C_6H_3(HO)_3 + 2NH_4HO = 2NH_4Br + (C_6H_3(HO_3) + O) + H_2O.$$

The ammonia probably forms a combination with the pyrogallol, which might perhaps be properly called ammonium pyrogallate. This substance attacks the silver bromide, reduced to the sub-state by the action of light. Bromide is abstracted from the combination with the result that a deposit of metallic silver is formed. Such action cannot possibly take place without the presence of water, as Dr. A. Mueller has ingeniously shown in his pamphlet on water "in allotropic condition." The pyrogallol is oxidized by the oxygen of the water $N_2O = H + O$, while the hydrogen set free combines with the sub-bromide to form hydrobromic acid $H + Ag_2 = BrH + Ag_2$.

In the rapid advance of photography we have not always adhered strictly to the path of rectitude. We have, for instance, deviated from it to a very considerable extent, in the employment of alkalies in combination with developing agents. After we had learned to employ sulphites for the preservation of pyrogallol in solution, ammonia was discarded by most American operators, although the English amateurs have retained it, with much profit to themselves, for a large number of medals and prizes carried from public exhibitions by Britons were developed with pyro-ammonia.

Sodium carbonate was the successor of ammonia, because its action produced the intensity of negatives so much desired in professional work. Dr. Franz Stolze, for very good reason, substituted potassium carbonate for sodium. Lithium, calcium and barium have since been recommended, but we fear without any distinct reason, and without signal effects. These salts are of so weak alkalinity that no more direct action can be expected from them than, for example, from bicarbonate of sodium. A strong solution of alkali promotes development to an almost incredible degree. What is the merit of rodinal or crystallos compared with our standard solution of eikonogen or hydrochinon? Strong alkalinity! Experimental trials with weak a

kalies do not tend to any distinct or direct results. With alkali as strong as the gelatine or collodion film can bear, we have the best factor in developing instantaneous exposures. Setting pyrogallol aside, however, let us look at our modern developers; those of the carburated hydrogen, or aromatic chemical compounds. There is no more energetic developer, in our opinion, than paramidophenol, and for its extraordinary property of resisting oxidation, it should be employed wherever exposures are unreasonably short, or when absolute density of the negative is required. Paramidophenol, the mother substance of all its derivatives, metol, amidol, reducin, and others, has held its own so far, and is without doubt the most energetic developer extant, whether it be in the form of nitrate, sulphite or hydrochlorates.

Rodinal, an incongruous chemical, owes its great developing force mainly to a large excess of alkali; the same with crystallos, a solution of eikonogen and hydroquinone with caustic potash. How the increase of alkali shows effect with our modern developers may be easily deduced from a few experiments made recently. A Carbutt 27 plate, exposed instantaneously with a long focus lens, gave but very doubtful results with pyro potassium. Neither amidol nor metol gave better effects, but with paramidophenol the 15⅝ inch focus lens stopped down to $f/30.5$ gave a good printable negative. When a modicum of caustic soda solution was added to the para developer (made according to our own formula), the picture sprang up at once after an exposure of possibly one-twentieth of a second. Development had to be restrained with bromide of potassium, the result being a good printable negative. To attribute accelerating powers to the alkali in the developer is perfectly jnstifiable.

NOTICE.

A new volume of The Photographic Times commences with the issue of January 5, 1894. This number will contain an interesting summary of all the most important events of the present year. With the new volume many important alterations, additions and improvements will be made, and several new features added. The series of "Distinguished Photographers of To-day," "The Fathers of Photography," and "Recreative Photography" will be continued, and the beginner in Photography, as well as the advanced student, will find his wants supplied.

EDITORIAL NOTES.



PHOTOGRAPHIC journalism has certainly made rapid strides of late years. In this, our Christmas number, we have endeavored to eclipse everything that has hitherto been attempted in this direction. We have no desire to boast of what we have done. We leave the decision to you, and shall be very pleased indeed to hear from you, and to have your opinion upon this result. In endeavoring to make this magazine as perfect as we can, we still realize the possibility of further improvements. Any hints and suggestions we shall receive with pleasure and give them due consideration. It is to our interest that you shall be thoroughly satisfied and it is to your interest to help us in every way you can. If you can suggest any reasonable means by which the majority of our readers will be benefited we shall certainly adopt it.

During the past year we have made several improvements in this magazine. But we do not intend to stop here. We have in view a number of others which we think will be pleasant surprises to our readers and which will help to make the volume of The Photographic Times, for 1894, surpass any of its predecessors.

It is possible that you, reader, may not be a subscriber to this magazine. We would in this case remind you that a new volume will commence in a week or two and that no better time could be chosen to commence subscribing than this. If you are a subscriber, may we ask you to kindly show this number to a friend who is interested in photography and who would be likely to find it useful to him.

We would call the attention of those of our readers interested in photo-astronomy to the excellent article on "Astronomy at the Lick Observatory," kindly written for us by Prof. E. S. Holden. At this perfect institution some of

the finest astronomical photographs are produced. In our issue of November 10th last, we gave an illustration of the famous Lick telescope of which Sir Edwin Arnold says: "Like a 110-ton gun to look at, but ah! how different in purpose and service. The colossal instrument reposed under our hands, peering broadly through the black embrasure of the slit in the cupola, obedient to the wheels and levers which moved it as though it had been a lady's lorgnette."

MR. VAL. W. STARNES, of Augusta, Ga., who contributes the very interesting illustrated sketch which appears in this number of THE PHOTOGRAPHIC TIMES, is a recognized authority on the Southern negroes' dialect. He has made a life study of the subject, and has recently contributed an article on this interesting matter to the *Century*. The negro dialect as it appears in the sketch we have the pleasure of printing this week "is not written without method or rule, although at times the spelling may appear to be purely arbitrary," writes Mr. Starnes, "as, for instance, in Hit and It. The negroes and country folks use Hit and It as follows: When preceded by a word ending in a vowel, It is pronounced It, for introducing the H here would interfere with the liquid coalescing of the two vowels, which is the keynote of all Southern dialect, viz., slurring and taking as little trouble as possible in articulation. When used at the beginning of a sentence, or following a word ending in a consonant, it is pronounced Hit."

A PHOTOGRAPHER writing to an English contemporary inquires if anyone "can suggest any novelties likely to attract the public and thus revive, if only for a short time, a sadly decreasing business." There is no doubt that a similar want is felt among professionals in this country. Perhaps a few serviceable hints will be found in some of our articles in this issue.

The public nowadays seem to demand something more novel than the ordinary bust or full length portrait. Many portrait photographers are doing good business with multiple pictures. In these, by means of mirrors, full, side, and three-quarter face pictures are made at the same time, and although but little extra expense a higher price is willingly paid.

THE Japanese are certainly making rapid strides in artistic photography. The latest number of the *Sashin Shimpo* contains a coll type reproduction of one of the prettiest phot graphs we have seen for some time. It entitled "Sunset," at least we imagine it is, fo as it is labeled with Japanese hieroglyphics, w are unable to give a guaranteed faithful tran lation. We can, however, discern a few comet a gridiron and a gallows tree, and imagine fro this, assisted by the picture itself, that this tit is intended.

As WE write these words the snow is fallin heavily and thoughts of snow scenes come upo us. Those contemplating this class of wor during the winter months will do well to stud the paper by Mrs. Main, which will be found our issue of September 22d. To obtain th beautiful soft shadowy effects one is advised photograph either early in the morning or la in the afternoon. We imagine the latter tim will be the one found most favorable. On must be a very enthusiastic amateur photog rapher indeed to be able to turn out early on cold, raw winter morning for the purpose getting the best effect of lighting.

THERE are many men, however, who hav become so fascinated with the art-science th it is their ruling passion. Only recently w read of a photographer who, when traveling some foreign forest, suddenly came upon a fer cious tiger that had just slaughtered and wa feeding upon some weaker animal. With th utmost *sang froid*, and a total disregard of h own danger, he erects the camera and makes photograph of the scene.

WHEN the ill-fated "Victoria" sank with a on board, the first impulse of an officer on on of the other vessels was to bring the camer into action. The late General Boulanger, wh shot himself at the graveside of his mistres was first discovered by a photographer, who once secured a picture before anything else.

THOSE of our readers who are in possessio of a copy of "The American Annual of Ph tography and Photographic Times Almanac and have read Professor Burton's article ther in, should read his letter regarding it, to b found on another page of this issue.

WE wish you all, in the old country and the new, a very Merry Christmas and a happ and prosperous New Year.



'CHIANTI'

number of [illegible] become a pop[illegible] photographs we have ever seen. It [illegible] and imagine it is [illegible] with [illegible] faithful [illegible] labor. We [illegible] upon a new [illegible] and imagine from [illegible] that this [illegible]

[illegible] snow is falling [illegible] come upon [illegible] of work [illegible] will do well to study [illegible] will be found in [illegible] To obtain the [illegible] one is advised to [illegible] morning or late [illegible] the latter time [illegible] favorable. One [illegible] amateur photog[illegible] turn out early on a [illegible] for the purpose of [illegible]

[illegible] who have [illegible] the art-sciences that [illegible] recently we [illegible] when traveling in [illegible] upon a fero[illegible] and was [illegible] With the [illegible] disregard of his [illegible] and makes a [illegible]

[illegible] sank with all [illegible] officer on one [illegible] the camera [illegible] Boulanger, who [illegible] of his mistress [illegible] photographer, who at [illegible] secured a picture before anything else.

[illegible] in possession [illegible] of a copy of "The American Annual of Photography and Photographic Times Almanac," and have read Professor Barton's article therein, should read the letter appearing in it, to be found on another page of this issue.

We wish you all, in the old country and in the new, a very Merry Christmas and a happy and prosperous New Year.

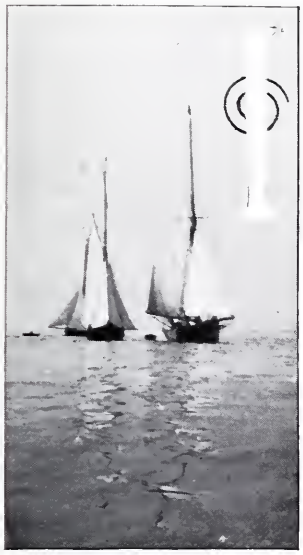


ALFRED STIEGLITZ.

"CHIANTI."

ASTRONOMICAL PHOTOGRAPHY AT THE LICK OBSERVATORY.

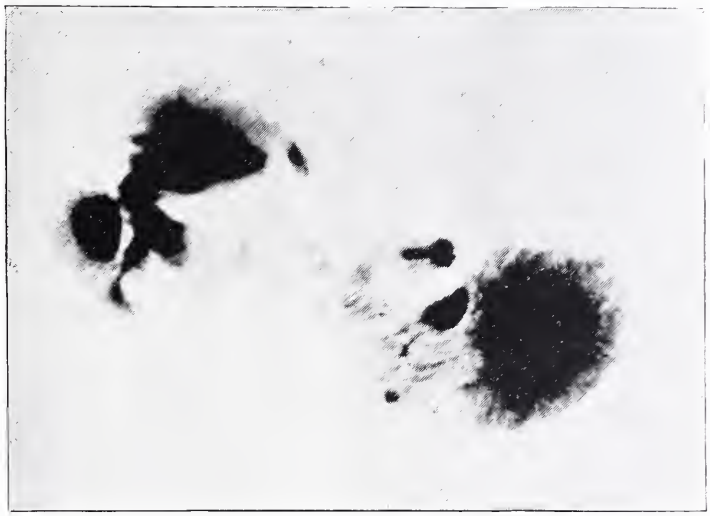
By Prof. E. S. Holden.



IN the following will be found a brief account of some of the photographic instruments and work at the Lick Observatory, written at the request of the Editors of The Photographic Times, to accompany some reproductions of our negatives which they have made from plates now in the possession of the Columbia College Observatory. The instruments employed differ so much from ordinary photographic cameras that it will be of interest to give a brief description of them.

The Great Equatorial: The large telescope has a visual object-glass of 36 inches clear aperture and of 57 feet $10\frac{4}{10}$ inches focus. To fit it for photography a *meniscus* of crown glass 33 inches in aperture is screwed on, in front of the visual objective. The photographic focal length is 47 feet $6\frac{2}{10}$ inches. At this place a hole is cut in the tube and a suitable brass frame inserted for receiving the plate-holders. The size of the moon's image at the focus is about $5\frac{2}{10}$ inches. For enlargements direct, an enlarging lens is placed in the tube some 14 inches or so beyond the focus (further from the objective) and the enlarged image is received at the plate about 10 feet 4 inches further still.

NORTH.



EAST. WEST.

SUN SPOTS OF AUGUST 8, 1893, AT 3H. 35½M. P. M.

SOUTH.



EAST.

THE CRATER COPERNICUS.

We have two enlarging lenses; one magnifying a little more than 8 diameters (for the sun) and one about 5 diameters (for the moon and planets). The diffieulty in taking such pictures is the same as if we were using telescopes of 380 and 237 feet respectively. The slightest tremor affects the image, and the wind is a serious obstacle to such work. The exposure on the full moon with a Seed plate (No. 26) in focus is about a quarter of a second with the full aperture.

The exposure for *Jupiter* enlarged 5 diameters on an extra-quick Cramer plate is 3 seconds. Stars are photographed in the focus and nebulæ also. But an instrument of shorter focus

is better for long exposures than the large telescope on account of wind-tremors. The Bruce telescope of the Harvard College Observ-



AGE, 5 DAYS 20 HOURS.

atory (aperture 24 inches, focus 11 feet) is exactly suitable for long exposure, maps of stars, or for pictures of nebulæ and comets. It is in fact a gigantic portrait lens. A reflecting telescope of 3 feet aperture and 20 feet focus would be a most valuable adjunct to the large



AGE, 20 DAYS 20½ HOURS.

refractor of the Lick Observatory, as it would cover the fields of photography of comets and nebulæ, leaving the refractor to deal with photographs of star-clusters and of stars for parallax where the long focus of the Lick telescope is a great advantage.

The Horizontal Photoheliograph: This is a horizontal photographic telescope of 5 inches aperture and 40 feet focus. The image of the sun is *reflected* into its object-glass from the mirror of a heliostat driven by clock-work. Pictures of the sun are daily taken on a scale of 4 inches to the sun's diameter. The picture of a sun-spot herewith is enlarged from one of these.

The earth on the scale of the picture would be represented by a circle one-fourth of an inch in diameter.

The Crocker Photographic Telescope: This is a



AGE, 13 DAYS 12 HOURS.

portrait lens of 5 inches aperture and 31 inches focus, mounted like a telescope. It is very suitable for long exposure pictures of nebulæ comets and of the Milky Way, and is regularly used for these purposes.

Photographs of the sun's corona have been made by expeditions from the Lick Observatory at the total solar eclipses of January, 1889 (in California); of December, 1889 (in French Guiana); of April, 1893 (in Chile), using various lenses with focal lengths varying from 40 feet to 9 inches. It is to be regretted that the present article does not contain reproductions of these eclipse-pictures and of those of comets, nebulæ, and the Milky Way made here.

The large telescope is used for photographing the spectra of stars, etc., and for determining

the motions of stars by this means. A large reflector would be an admirable adjunct in such work.

Enlargement of Moon Pictures: The pictures of the moon taken in the focus are about 5 inches in diameter. Hence many of the smaller features of the lunar surface are too small to be well seen without the use of a powerful magnifier. All of our moon negatives will stand an enlargement up to 3 feet to the moon's diameter with advantage. Many of them can be advantageously enlarged to a diameter of 6 feet. Special regions with suitable lighting have been enlarged to advantage, to correspond to a scale of about 17 feet to the moon's diameter. At this point we must stop until sensitive plates can be manufactured with a finer grain to the film. Nothing is shown in these enlargements, of course, that is not in the original negatives. But what is there is better shown if the enlargement is done with proper skill. It is only since 1891 that such enlargements have been made here, and during the present year several foreign photographers have improved on our own results. The carbon process seems to be especially suitable in this respect.

Reproduction of the Negatives: One of the most difficult problems is to find ways to reproduce our negatives by autographic mechanical processes. The present article contains some halftone cuts which are, presumably, as good as can be obtained. They do not represent the originals in a satisfactory manner. The heliogravure is better, and, in fact, this process is the most satisfactory of any which we have yet tried. A good silver-print from the original negative is, on the whole, the most suitable. But as we print in editions of 1000 copies, the expense and the labor of such reproductions is too great to permit us to employ them.

EDITORIAL NOTE.

We hope, in future numbers, to give reproductions of the pictures Professor Holden refers to in the foregoing article. So many of our readers are interested in photo astronomy that we shall always endeavor to give the latest information upon the subject, by the most competent writers. In our issue of November 10th we gave an excellent illustration of the Lick telescope referred to, also of the Yerkes 40-inch instrument. Our January 5th issue will contain a reproduction of the solar corona taken by Prof. J. M. Schaeble during the recent Chile expedition.

FLORAL PHOTOGRAPHY.



PERHAPS the beauties of nature are nowhere better exemplified than in flowers, and nothing can be prettier than photographs of them carefully arranged. When we say carefully arranged we mean, of course, artistically. The secret of arranging flowers—an art in itself—is to hide the fact that they have been arranged.

The charming pictures of flowers and fruit which appear on this page and the next, are by Mr. John Carpenter, an English gentleman, who has made this particular branch of photography his chief study, and has been awarded many prizes and medals for flower studies.

Some time ago we wrote to him asking for a few particulars of his method adopted, and he has been very kind enough to send the following valuable notes:

Suitable Flowers.

I find that the best colors to photograph are pale pink, yellow, white or variegated colors. Reds, browns, and dark colors generally, do *not* answer well.

Flowers of irregular form are most suitable, such, for example, as chrysanthemums, lilies, poppies, etc. These give beautiful gradations of light and shade.

Grouping.

There is great scope here for artistic feeling. All appearance of formal arrangement must be avoided and a natural grouping should be aimed at. This becomes more difficult as the flower must be somewhat on one plane to get them in proper focus. A round bunch of flowers which may appear very pretty to the eye would probably be utterly wrong to make a picture of.

Lighting.

I have never worked in a studio but have a small lean-to glass house in which I

work. The top light is softened down by light shades so that the strongest light comes from the side. This gives solidity to the subject and is more pleasing than a flat lighting. Of course, the sun should never shine on the subject.

PLATES AND EXPOSURE.

If colored flowers are being photographed, Iso plates are a necessity, but for white flowers and light-green foliage ordinary plates may be employed. I generally use a medium isochromatic, stop the lens to *f*/22 and give exposure of from thirty to sixty seconds in summer and vary according to the season; sometimes twenty *minutes* is not too much.

DEVELOPMENT.

My usual and favorite developer is pyro ammonia, and in careful hands it cannot be beaten. I commence development with a minimum of pyro and work tentatively.





By J. Carpenter. FLORAL STUDIES. Weeks Eng. Co.

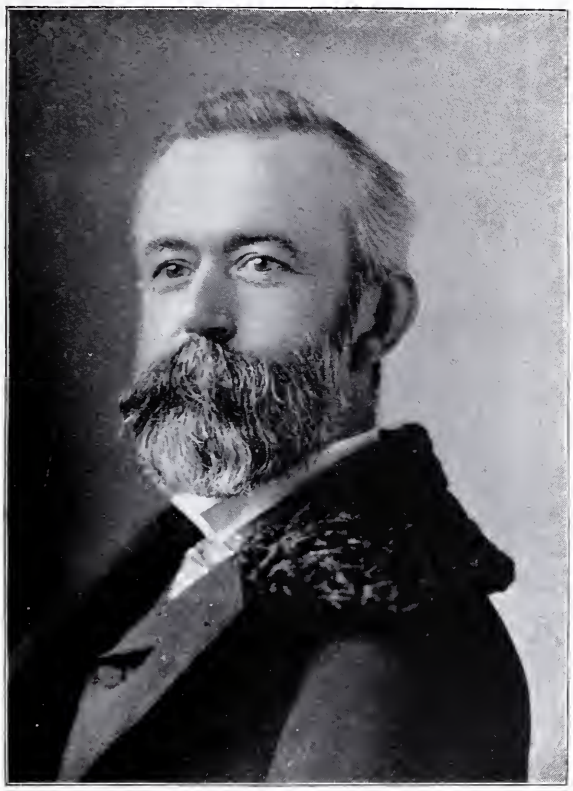
Using 100 per cent. solution for 2 ounces of developer I should commence with 1½ grains pyro, 1 grain bromide, and 2 grains ammonia. If the image does not gain sufficient density add more pyro and bromide, but unless very fully exposed it is difficult to avoid too much density, especially if white flowers are being photographed.

I find a plain gray or dark background most useful, and to avoid flatness it may be set at an angle and not too near the subject.

Flowers should be photographed as soon as gathered, and if possible be placed in water. I have often found a plate spoiled by movement of the leaves or flowers, even with short exposures, although the movement was not perceptible to the eye. This is more especially the case in hot weather.

THE STORY OF THE PHOTOGRAPHIC TIMES.

The Photographic Times grew out of a suggestion made by Mr. W. Irving Adams at lunch one day over twenty-four years ago, when a small party of gentlemen connected



E. L. WILSON.

with The Scovill Manufacturing Company were taking their noon-day meal together.

It was at first merely a little eight-page monthly, designed, as its "apology" stated, to "set the photographer commercially right." It was then virtually edited by Mr. Adams, who supplied all the material for the trade notes, and directed its policy, though Dr. E. L. Wilson furnished most of the literary matter and superintended the printing. It was sent out with Doctor Wilson's *Philadelphia Photographer*, *The Photographic World*, and *Walzl's Photographic Magazine*, in addition to the 500 copies which were mailed each month from the office of The Scovill Manufacturing Company, then at number four Beekman Street, New York. The Photographic Times therefore, in its first number, secured a circulation greater than any other photographic periodical of its time, for it sent out, in addition to the copies which went with the three publications acknowledged to have the largest circulation of their time, 500 additional copies, as stated. This position, secured with its first number, the magazine has never abandoned, and it is to-day, as it was then, the most extensively circulated photographic periodical in America. The first edition of the present number is 5,000 copies. This represents an actual circulation much larger, of course, than that figure indicates; probably at least three or four times that amount, as usually estimated and claimed by publishers.

The earlier numbers of The Photographic Times contained, in addition to trade notes and matters of commercial interest, considerable matter of technical and scientific value written especially for its pages. The letters on "Photography for the Uninitiated," by Charles Wager Hull, addressed to "My Dear Son," were especially popular, being reprinted in various European photographic periodicals, and translated into several foreign tongues. A glance at the index of the first volume shows, among other names of well-known photographic writers, those of O. G. Mason, Henry J. Newton, G. W. Wallace, Henry Clay Price and John R. Clemons.



J. TRAILL TAYLOR.

The little monthly grew rapidly in popularity and influence. From being sent out at first gratis, its subscription price was made 50 cents per annum, and later $1.00. It was soon sent out independently of the other photographic publications, though Doctor Wilson continued to give editorial attention to its make-up until

1881, when Mr. J. Traill Taylor, formerly editor of *The British Journal of Photography*, was engaged to edit THE PHOTOGRAPHIC TIMES, with the assistance of many well-known American photographic writers. Its subscription price was increased to $2.00 and very soon the



W. J. STILLMAN.

publishers had on their books more names at that rate than they had previously had at $1 00. Among the more prominent contributors who wrote for its pages at this period might be mentioned the following: W. J. Stillman, Charles Ehrmann, J. E. Beebe, Alexander Henderson, Henry M. Parkhurst, W. H. Metcalf, Karl Klauser, H. Norden, Joshua Smith, C. W. Canfield, W. K. Burton, F. A. Jackson, W. H. Walmsley, J. F. Coonley, Dr. Vogel, and W. H. Sherman: these in addition to those who have already been mentioned, who continued to write for its pages.

THE TIMES was now the acknowledged leading organ of photographers, both professionals and amateurs, in America. It was always "abreast the first wave of progress," as was stated of it. In 1881, as a bit of characteristic enterprise, it might be mentioned how, when The Photographers' Association of America held its Annual Convention in New York, THE PHOTOGRAPHIC TIMES appeared regularly every day throughout the entire convention, giving full proceedings of the day previous.

In the fall of 1884 the magazine became a weekly, with the subscription price $3 per year, though a monthly edition was continued as theretofore at $2 per annum. With the beginning of the next year (1885) the weekly PHOTOGRAPHIC TIMES enlarged its pages to large quarto; and W. J. Stillman and Charles Ehrmann became regularly associated with Mr. Taylor in the editorial conduct of the magazine, and Mr. W. I. Lincoln Adams was added to the staff as an assistant editor.

In 1886 the size of the page was slightly reduced for convenience in handling and binding, but the number of pages was increased from ten to twelve. In the autumn of that year, Mr. W. I. Lincoln Adams became Managing Editor of the magazine, and many new names were added to the contributors' list. A number of the better-known English and foreign photographic writers were engaged to write regularly for its pages; among others, H. P. Robinson, W. Jerome Harrison, Andrew Pringle, G. Watmough Webster, W. K. Burton, F. C. Lambert, W. M. Ashman, W. E. Debenham, of England; Victor Schumann, Carl Schweir, Dr. J. M. Eder, Dr. H. W. Vogel, Carl Srna, Dr. Mallmann, and others, of the Continent of Europe. In America the old contributors continued to write for its pages with the addition of such well-known photographers as J. M. Mora, John Carbutt, J. R. Swain, Prof. G. M. Searle.



CHARLES EHRMANN.

Rev. Clarence E. Woodman, J. Will Barbour, P. C. Duehochois, W. N. Jennings, George R. Sinclair, F. C. Beach, Randall Spaulding, Professor Harkness, U.S.N., S. W. Burnham, Lieut. Very, U.S.N., and others of equal renown.

Beginning with the year 1889, when The

Scovill & Adams Company was incorporated, succeeding to the photographic business of The Scovill Manufacturing Company, our magazine was published by The Photographic Times Publishing Association and became a thor-



W. I. LINCOLN ADAMS.

oughly independent periodical devoted exclusively to "the art, science and advancement of photography," as its sub-title states.

In the Autumn of 1886, when the authorities of the great Chautauqua University recognized the growing importance of photography by establishing a School of Photography, Professor Ehrmann was selected as Instructor of the School, and The Photographic Times its authorized organ. Since then, our magazine has maintained a regular department devoted to the Chautauqua School of Photography, and has found it a popular feature of the paper with all its readers. The School has grown in numbers, until it is now probably the largest School of Photography in the world.

In 1887 the first volume of "The American Annual of Photography and Photographic Times Almanac" was issued, and at once sprang into a widespread popularity. It contained eighty original articles by well-known contributors to The Photographic Times and others, and five full-page pictures. It was edited by Mr. C. W. Canfield, with the assistance of Professor Ehrmann, W. H. Fuller and W. I. Lincoln Adams. The first edition of the initial volume was 3,000 copies, though a second edition of 3,000 more copies was required. In 1888, the circulation extended to 7,600 copies; in 1889, to 8,110; in 1890, 15,150 copies were printed and sold; and in 1891, 16,250. In 1892, the first edition was 18,000 copies; in 1893, the first edition was the same, and every copy was sold. This year the first edition is 20,200 copies, and over 16,000 were sold on the day of publication—December first. We give these figures, as they show, better than anything else possibly can, the phenomenal success of this child of The Photographic Times. The 1894 volume contains over four hundred pages of reading matter, twenty-five full-page pictures, and twenty-four original contributions. It is edited by the editor of The Photographic Times, as were also the two preceding volumes.

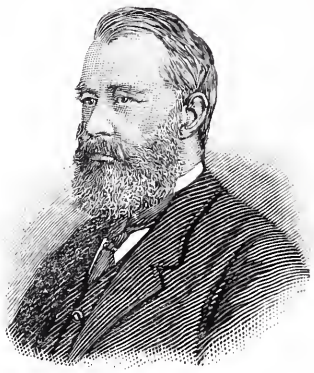
The Photographic Times had frequently brought out full-page pictorial illustrations, in addition to the cuts and diagrams which always brightened its reading columns; but beginning with 1889, it presented its readers regularly, each week, with a full-page pictorial frontis-



WALTER E. WOODBURY.

piece, reproduced by photogravure or other high grade process, and including an occasional photographic print on albumen or other sensitive paper. It thus became the first and continues to be the only photographic weekly publication in

the world, containing a full-page picture with every issue. Its Convention, Holiday, and other special numbers often contained double and triple the amount of reading matter of an ordinary issue, and several full-page pictures. With the beginning of 1889 the subscription price was made $5.00. Though there was a short rebound at first in circulation on account of this great increase in price, the photographic public soon realized that they were really obtaining more for their money than ever before, that THE PHOTOGRAPHIC TIMES was actually the cheapest photographic periodical published anywhere in the world, and before the end of the year the circulation had reached and passed its previous highest mark.



H. P. ROBINSON.



W. K. BURTON.



ANDREW PRINGLE.



F. C. LAMBERT.



W. JEROME HARRISON.



J. R SWAIN.



W. H. SHERMAN.



P. C. DUCHOCHOIS

In the spring of the current year Mr. Walter E. Woodbury, son of the famous W. B. Woodbury, of Woodbury type fame, became attached to the editorial staff of the magazine, and has since been associated with Mr. Adams and Professor Ehrmann in the editorial management of the paper. During the summer its reading pages were increased from twelve to sixteen, and half-tone illustrations were added to the body of the magazine. Better paper was, of course, required to do justice to these half-tones, several of which have been published in each number, new type was procured, and the magazine underwent an entire change. The paper attains, in its present number, a higher standard of excellence, both from its mechanical, artistic and literary standpoints, than has ever before been approached even by any photographic periodical in the world. The comparison of this HOLIDAY NUMBER, with its forty pages of original reading matter and nearly one hundred pictorial illustrations, with the little eight-page trade monthly, sent out gratis, twenty-four years ago, strikingly illustrates the development of the magazine during the nearly quarter century of its life, and tells, better than words of ours possibly can, the real story of THE PHOTOGRAPHIC TIMES.

OUR HAND-CAMERA COMPETITION.



IT WAS about the middle of June last when we decided to hold various competitions in connection with this magazine. The decision was not made without careful thought. The experiment was a new one and we were doubtful as to the result. Our idea was chiefly to induce our readers to take more interest in special branches of photography. We will not, however, be above admitting that we also had the idea that these competitions would tend to further popularize this magazine and increase its circulation, an idea that has proved correct. Valuable prizes of apparatus were at first awarded, and owing to it being then the commencement of the summer and actinic months, we chose hand camera work for the subject of our first contest. The date for closing the competition was the last day of September, and previous to within a week or two of this day we certainly had fears that our first attempt would not be the success we had hoped. This idea was soon changed, however, for during the next few days, and right up to the very last minute, the parcels of sets of photographs came pouring in like a torrent, from all sources, by mail, by express, by special delivery, by every method of conveyance possible, until nearly 700 pictures had been received. Naturally we were kept pretty busy in checking and entering these, and stowing them away in a fire-proof compartment until the judges could do their work.



Photo by E. G. Lee. "WHO BROKE THE WINDOW?" Photo-chrome Eng. Co.

The gentlemen selected to award the prizes were Mr. Alfred Stieglitz, Mr. Wells Champney and Mr. George Rockwood. All these gentlemen are well known in the photographic world, and we had perfect confidence in their judgment. They worked separately awarding marks for each set. Reports were received from each with the number of marks awarded. The amounts for each individual were then added together and the highest number was found to have been obtained by Mr. Edgar G. Lee, of Newcastle, England. Mr. Lee's pictures were certainly deserving of the honor awarded to them, although this is by no means the first. We give two reproductions here, but must say that the beautiful delicacy, softness and richness of color of the originals cannot possibly be reproduced by any process block. Mr. Lee began to study photography as recently as 1885. He commences with a half-plate camera, but soon changed it for a quarter-plate, and devoted himself almost entirely to hand-camera and lantern-slide work. The camera he uses was constructed by himself. Four years after his first lessons in the art he was awarded the silver medal of a north of England society, of which he has been Secretary for the last six years. Since this date he has received over thirty-five



Photo by E. G. Lee THE RAG FAIR. Photo-chrome Eng Co.

awards, gold, silver and bronze medals, diplomas, etc. It is not necessary to make any comments upon such pictures as are here given. "Who Broke the Window," and "The Rag Fair," are two perfect little gems. The artist has the



Photo by W. B. Post. Photo-chrome Eng. Co.

MOONLIGHT ON THE QUAY.

happy knack of choosing his opportunity and making the most of it.

The next prize fell to Miss E. V. Clarkson, a lady amateur well known to our readers. The frontispiece of this number, entitled "Santa Claus," is by the same artist. Miss Clarkson has met with many successes; only recently she was awarded the gold medal in the Annual Lantern Slide Competition given by the amateur photographers of England. Miss Clarkson firmly believes her success to be principally due to the instruction received from Professor Ehrmann and the Chautauqua School, of which she is a graduate. The picture, "Moonlight on the Racquette," which

we give here, is a specimen of her work. T original of this is printed on carbon, and o deep blue color, so of course much of the eff is lost, notwithstanding the fact that the rep duction of so difficult a subject is one of finest we have seen.

The winner of the third prize was Mr. W. Post, a gentleman well known in New Yo photographic circles, and a very prominc member of the Society of Amateur Photog phers of New York. Mr. Post is the recipi of many medals and awards. The picture wh we reproduce here, entitled "Moonlight on Quay," is a wonderfully effective work of The original is printed on sepia-toned platin paper.

The three certificates were given, one to W. D. Welford, the author of a popular Engl monthly magazine entitled *The Photographic view of Reviews*, and a gentleman who has do very much to create a greater interest in ha camera work in England. Another to Mr. J. Stebbins, another gentleman not unknown this country, and an active member of the So ety of Amateur Photographers of New Yo and the third to Mr. A. P. Schoen, an thusiastic and successful worker in photo raphy.

The success of this competition has been every way pleasing to us. It entailed a ve large amount of extra work, but we have do it willingly and cheerfully, and we are pleas



Photo by Miss E. V. Clarkson. MOONLIGHT ON THE RACQUETTE. Photo-chrome Eng. C

to say that we have not as yet received a single complaint as to competitor or the awards.

Our next competition will be for open landscape work, and full particulars will be found in another column. We only hope that our readers will take as much interest in this and send as good work as with the last.

One or two alterations have been made in this contest, the principal one being the substitution of medals in the place of apparatus prizes. We have been led to believe that these would be far more acceptable to the majority of our readers, as being more lasting mementos of their skill. This belief has been quite recently confirmed by a letter received from one of the recent prize winners requesting a medal instead of the apparatus awarded, she having all of the latter necessary.

One point, however, we should like to call particular attention to, and that is that in every competition the judges will be requested to withhold any or all of the medals if the work is not of sufficient merit; or, in other words, the medals will not be awarded to the competitor simply because his set is the best of any sent in, but because it merits such a reward. We do not intend to be absurdly exacting in our standard, but desire that the possession of a PHOTOGRAPHIC TIMES medal shall be known throughout the world as a guarantee of high meritorious work performed.



Photo by G. L. Sinclair.

GOING OUT TO SEA.

We have omitted to mention that the remainder of Mr. Lee's pictures were reproduced in our issue of November 10th, last.



Photo by C. Himes.

HESSIAN PEASANT WOMEN.

The initial letters and tail pieces which help so much to illustrate this magazine, are all taken from pictures entered for competition.

We have been asked by one or two contributors to give some of the particulars furnished by the prize winners of their methods of working.

Mr. Lee's prints were upon gelatino-chloride aristotype paper, toned in a combined bath to a sepia color (method not given.) The hand-camera he constructed himself, and to get the negatives he employed isochromatic plates developed with hydroquinone and washing soda. Miss Clarkson's pictures were all carbon prints varying in color. No further particulars were given. Mr. Post's pictures were, we believe, all upon platinotype paper, black and sepia, although no description was furnished.

Mr. Stebbins used a hand-camera of his own design. Mr. Welford employed solio paper, toned with platinum, and with his pet rapid bath, while Mr. A. P. Schoen's pictures were all World Fair scenes upon Ilotype paper.

The pictures upon this page entitled "Hessian Peasant Women" and "Going out to Sea" are from sets entered in this competition.

DISTINGUISHED PHOTOGRAPHERS OF TO-DAY.

II.—MRS. E. MAIN.

AWAY up in the most beautiful part of Switzerland resides a lady who for some time past has attracted the attention of the whole world by her superb photographs of the mountains and mountainous districts of Switzerland. It is, however, chiefly by her treatment of snow scenes that Mrs. Main has earned a reputation and been awarded medals and honors in different parts of the world.

When first taking up her residence in Switzerland, and especially when climbing the mountains, she often longed for some way of retaining in her mind the glorious scenes of nature through which she passed; accordingly, she devoted herself to the art of photography, with what success we know.

Any one who has attempted the photography of snow-covered trees and landscape will have experienced the difficulty in obtaining soft shadowy effects, and avoiding the soot and chalk appearance that most snow photographs possess.

Mrs. Main has succeeded in this without doubt, as evidenced by her snow scenes, thre of which we reproduce here.



E. Main
1893.

At the recent Congress of Photographers hel at Chicago, she kindly sent a paper upon th



By Mrs. E. Main.

"ST. MORITZ."





[illegible]

[illegible] charge. You will [illegible] a thousand exquisite [illegible] highest and [illegible] broken again by [illegible] tals, each with its [illegible] shade throwing up [illegible] the roundest, biggest [illegible] half in sunshine [illegible] around and over [illegible] If there has been [illegible] the night, a fresh [illegible]

[illegible] our sketch. Miss Vane [illegible] case of the [illegible] art of photography [illegible] has [illegible] a very large number [illegible] the entire proceeds being devoted [illegible] purposes. In this country the Photo[illegible] Company of Philadelphia are her agents [illegible] their generously large [illegible] pictures sell over the whole civilized world, so that she is [illegible] very large sum for her philanthropic purposes.



subject, detailing the method she adopted. A full report of this will be found in The Photographic Times of September 22d. The whole secret of failure and success is put in a few words. Most persons make their exposures during the middle hours of the day, and so do not get the best effects. She says: "At midday in winter the light falls too directly on the subject; the lace-like tracery, with its system of innumerable tiny snow crystals, obtains no relief against the white robe, standing hard and stiff around rock and châlet. But go early in the morning or late in the afternoon and note the change. You will find in the long, soft shadows, a thousand exquisite half-tones. See how the highest and nearer lights are broken, and broken again by the thin veil of surface crystals, each with its perfect modeling, its tiny shade throwing up its starlike form. Look at the rounded, billowy flow of the snow where, half in sunshine, half in shadow, it sweeps around and over the inequalities of the ground. If there has been a mist, however slight, during the night, a fretwork of hoar-frost will cover all, and will complete the materials for as fine a subject as you can wish for."

Mrs. Main recommends a slow plate and a small stop. In developing she works slowly and brings up plenty of density so as to obtain a range from excessive density to clear glass, although very little of either of these two extremes, as the beauty of the picture lies in the delicacy of the half-tones.

There is one important point that we must not forget to mention, as it gives us an insight into the generous character of the subject of our sketch. Mrs. Main not only works for the love of the beautiful art of photography which has completely fascinated her, but she disposes of a very large quantity of her photographs, the entire proceeds being devoted to charitable purposes. In this country the Platinotype Company of Philadelphia are her agents, and they generously forego all commission. Her pictures sell over the whole civilized world, so that she is able to realize a very large sum for her philanthropic purposes.



By Mrs. E. Main. "ALONG THE MOUNTAIN ROAD."

THE FATHERS OF PHOTOGRAPHY.

IV.—WALTER B. WOODBURY.

WALTER BENTLEY WOODBURY was born at Manchester, in the year 1834. His grandfather, Walter Bentley, was a well-known naturalist and the bosom friend of Audubon. His father, John Woodbury, was one of the original promoters, if not the originator, of the early closing movement in England. At a very early age he developed a love for scientific pursuits and was placed as an apprentice in a patent office at Manchester with a view to adopting the profession of a civil engineer. In some interesting reminiscences* he writes: "I had always been great in 'camera obscura' of various forms, cigar boxes and spectacle-lenses being the general basis, and my greatest pride, at the age of twelve, was to take my boyish companions to the garret at the top of the house, where I had, by means of an old magnifying mirror and a sheet of looking-glass, been able to throw a two-foot image on to a table beneath."



WALTER B. WOODBURY.

Then came the gold fever. Allured by the glowing accounts of life at the Australian gold fields, he set sail for that country in 1852. On arrival at Melbourne he discovered to his sorrow that nearly everyone was returning from the gold diggings, thoroughly disgusted, and the town was so full that another town of tents, called Canvas Town, had been built. The exorbitant charges for necessities soon reduced his money and he found himself left with thirty dollars. At this time what should he above all things but an old camera and exposed for sale. His old love returned and recklessly spent two-thirds of his remain worldly wealth in purchasing it, about the m useless thing he could possibly have bou seeing that he was without the necessary ch icals. Then follows two or three years of s hardships as it has been the lot of few to encounter. He became, successively, bull driver, cook, paper-hanger, writer of tick surveyor's borer, etc. failed, he wrote, to ge job at break stones, for reason th there were many cler men's sons Oxford gra ates with p claims. At came a turn the tide and obtained a g ernment sit tion and assis in laying the town of larat. He then appoin draughtsma the enginee department the water wo at Melbour and in this p tion had m leisure to dev to his favo pursuit. The old camera had been his faith companion in all his wanderings and now came at last a useful one. His photograp endeavors were quickly crowned with succ for in 1854, at the age of 20, he obtained his f medal at the Melbourne exhibition. It was a bronze one, but he always valued it far hig than the many silver and gold awards that afterward obtained for his numerous inventi and improvements.

At the conclusion of the government work started in Melbourne as a professional phot

* See *The Philadelphia Photographer*, 1885.

rapher, but disliking the life there he started on a trip searching for "fresh fields and pastures new." He visited Java for some time, and then returned to England with one of the finest collections of views that have ever been made. In 1860 he returned to Java, and with another gentlemen (who died shortly after) he established a business under the name of Woodbury & Page, a business which flourishes to this day, and is known throughout the East.

After five years' residence in that country he returned to England with a wife and plenty of money, but unfortunately somewhat impaired in health.

Then began in earnest the life in which he did so much for photography and photographers. Between 1864 and 1884 he took out no less than twenty patents for producing surfaces in relief and printing from metal intaglios, producing designs on wood, paper, metal, cloth, etc., and for improvments relating to optical lanterns, stereoscopes, kaleidoscopes, barometers, hygrometers, and photograph apparatus of all descriptions.



By Fr. Müller. A PORTRAIT STUDY. Munich.

His great process was of course the one he gave his name to—the Woodburytype, a process little known in this country, but extensively worked in England, France and Germany. It is a method of producing carbon prints mechanically, and few can imagine the host of difficulties that beset the inventor. Many were the times that he almost gave up in despair. But he conquered at last, and perfected the process so entirely that although it has been worked some twenty-three years or more, no improvements have been made except in a few minor details, and in a method of transferring to obtain clear margins. When his application for the American patent came before the veteran Patent Office Examiner, Titian R. Peale, the latter said, "This is an invention. The most of the things which come before me are modifications, but this is *truly* an invention."

The Woodburytype process was the first photo-mechanical process, and its value was soon recognized by the public when they found that they could for a very small sum obtain photographs equal in every respect and superior in permanency to those they were formerly compelled to pay many times the price for.

To describe all the inventions and improvements of this prolific inventor would require many columns of our magazine. Woodbury has been aptly termed the Edison of photography. His stannotype was a simplified Woodburytype process, his photo filigrane a method of producing watermarks and photographs or designs in paper by simply rolling a gelatine negative in relief into paper or thin cardboard. He was the pioneer of balloon photography, and the photogravure process was the outcome of his experiments and suggestions.

No better or kinder hearted man ever lived, but like most inventive geniuses his weak business abilities did not enable him to reap the proper benefit of his labors.

In 1885 he died, having worked up to the last days of his life for the progress of photography.



ORTHOCHROMATIC METHODS IN PHOTO-MICROGRAPHY.

By Dr. A. Clifford Mercer.

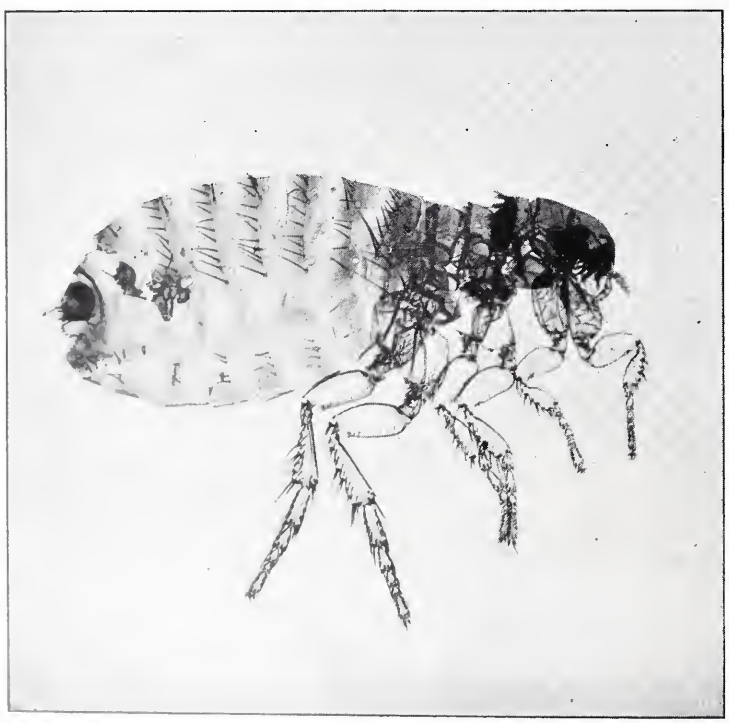
"A DOG'S FLEA" as an object of natural history is too trite a subject, I believe, for most readers, who will be seriously interested in the double photomicrograph of this Christmas issue. But I trust it is pardonable to use portraits—if I may so write—of a flea to show by example a superiority of orthochromatic over ordinary methods in photomicrography—not "microphotography" (by the way) which is quite the opposite kind of photography.

The superiority of orthochromathic methods in photomicrography is marked. The various natural colors and artificial claimings of microscopic objects can be satisfactorily photographed only with orthochromatic methods,—methods analogous to those used in photographing paintings. Further, orthochromatic methods are advantageous in an additional way in photomicrography. Ordinary microscope lenses have their aberrations corrected to give the best visual image without regard to the character of the photographic image—which is likely to be inferior; and the visual and photographic images are not coincident. With orthochromatic methods the character and position of the photographic image—as known in ordinary methods—are neglected, for wi orthochromatic methods the visual image its becomes the photographic image.

The two portraits of a dog's flea are of t



1.—A DOG'S FLEA: ORDINARY METHOD.



2.—A DOG'S FLEA: ORTHOCHROMATIC METHOD.

same flea taken with an ordinary three-in objective, and by lamp light under the sar conditions throughout, excepting the fi negative was made on an ordinary pla with a certain exposure, and the seco on an orthochromatic plate (Vogel's e side of silver) with a different exposu Accidentally the first amplification slightly greater than the second. T subject is for the most part yellow, var ing from a pale yellow of the abdom through deeper yellow to reddish-brow of the head, with a slight amount of blac In the first sitting with ordinary metho the pale abdomen was exposed one mi ute and the dark head two minutes. T result shows general under-exposu which becomes very marked in the hea In the second sitting, with orthochr matic methods, the whole subject w evenly exposed one minute and a ha Not only are the light values more tru reproduced in the second result, but de nition is markedly better—in accordan with principles noted in the precedi paragraph.*

* In justice to Dr. Mercer we would explain that the half-tone rep ductions do not give the beauty of the original photographs. The li screen breaks up the fine detail, wherein lies the fine points of t photomicrograph.



Photo by Charles Scolik.

FROM THE DRY PROCESS TO THE WET.

PHOTOGRAPHY AT THE WORLD'S FAIR.

By HORACE P. CHANDLER.



KNOW that the World's Fair at Chicago will soon seem like an Arabian tale, but it has left vivid impressions upon the American mind never to be obliterated. As to its architecture, language can hardly paint too highly its effect upon the artistic sense of our people, so impressionable in temperament, so quick to respond to the harmonious blending of form and color, and to appreeiate the atmospheric tints in the blending of water-vistas and landscape-gardening. Upon such a people, I am sure, the shifting lights falling upon the classic forms of the buildings by sunrise, sunset and moonlight were not lost.

The patrons of Photography will not forget to award to the Camera a plaee of honor at the Fair, and it will be no humble one. It would be most interesting indeed could the statistics be given so as to know how many different cameras had been used by amateurs at the World's Fair.



By H. P. Chandler.

DAS DEUTSCHE HAUS.

Of course, as it has been in other places, at all times, poor work has been done as well as good; on the whole, however, I believe the Fair will have most favorable and useful results on the work of those who have conscientiously devoted themselves to it.



By H. P. Chandler.

"SAMOANS."

In Jackson Park and the Midway Plaisance a larger number of interesting "subjects" were to be found for the selection of the camera artist than in any other place in America since photography was discovered.

Sauntering down the Plaisance on a July day, when the thermometer was in the nineties, I resisted the charms of the "world's beauties," the Javanese Village, Blarney Castle, the Streets of Cairo, the exhibits of Dahomey, the Soudan, Lapland, Austria, Turkey, Algeria, and even Hagenbeck's lions, to look in upon the performance of the South Sea Islanders, or, more correctly speaking, the Samoans. Their cosy little theatre was well filled with an appreciative audience, who seemed to be thoroughly interested in the native songs and dances of a people whose physique in itself was enough to excite the admiration of any true lover of the human form.

The principal manager of the Samoans is a Mr. Moors, a native of Michigan, I believe, who, some twenty years ago, went to California; and from thence, drifting across the Pacific to Hawaii, soon reached the Samoan Islands, and twelve years since became the owner of one of the group. He married a full-blooded Samoan, who was brought up in the home of a missionary. Her toilet appeared to be similar to that of our American women, and she speaks excellent

English. Of her three children (two were left at San Francisco at school), the youngest, a little one of three, added much to the domestic appearance of the village. I shall never forget the twinkle of the jet black eyes of this bit of humanity as she clasped in her arms the Japanese doll I gave her, crying "Oh, bebe."

These men and women, truly "nature's noblemen," owe much to the Camera. But for its faithful work they might have come to us and gone away forever, leaving no trace for the treacherous memory of the sightseer to recall.



THE "SANTA MARIA."

Closely vieing in interest with the convent of La Rabida, and connected with it, were the three caravels. Nothing, perhaps, shows the wonderful progress made during the 400 years intervening between the day when Columbus first set foot on the newly-discovered land and the present time, as the natural way in which the human mind accepts the presence of these Spanish ships in replica. Quietly they ride the waters of Lake Michigan, 1000 miles inland from the great ocean that they have recently traversed. Had one foretold their presence here, even fifty years ago, how men would have smiled at such credulity. For many an entire day a crowd over-ran the decks of these little ships, wondering at the bravery of the men who faced the elements in such frail-appearing crafts.

To the thoughtful visitor countless and wonderful are the lessons learned at the Chicago Fair, and far beyond human conception must be the results.

Das Deutsche Haus —the German Building—by far the costliest of all the foreign buildings, had for its location one of the best in Jackson Park, directly facing the east and the blue waters of Lake Michigan. The Vaterland seemed to have contributed its best both in interior and exterior decorations. The style of the architecture, German renaissance, exhibited the transition in the fifteenth and sixteenth centuries from Gothic to Renaissance, and showed partial reproductions of typical German architecture, such as portions of the City Hall in Rothenburg, the Schloss in Aschaffenburg and buildings in Gosslar. One feels grateful at the opportunity of studying those things Here, as elsewhere, the pencil might have done its best; and yet but for the Camera and its foster brother, "process" work, the great masses who could not go to the Fair would have known little of the wonders of the "White City."



Photo by R. P Schoen — Weeks Eng. Co.

THE ADMINISTRATION BUILDING.

A CURIOUS EXPERIENCE.

PHOTOGRAPHY IN THE YEAR A.D. 2000.

BY MAX MADDER.

(With apologies to Edward Bellamy.)



FEELING weary and worn, I returned to my lonely bachelor quarters, cursing the fate that compelled me thus to lead such a solitary existence.

A good substantial dinner prepared for me by the kind-hearted landlady served somewhat to restore my troubled condition.

Seating myself in the old arm-chair, with the latest work of a popular novelist, I endeavored to forget the business worries and anxieties of the day.

A good stiff glass of hot punch stood by my side and served its purpose as a comforter.

Suddenly a vague sensation of uneasiness came over me. I had that indescribable feeling that something was about to happen. I felt a peculiar sense of drowsiness; my eyes would scarcely keep open no matter how I struggled.

I jumped up with a start. Had I been asleep? Was I now dreaming or awake? What was the cause of this extraordinary change? Where was I?



I pinched my arm till the blood oozed through the pores. No, I must be awake, I thought.

But how can I describe the scene before me? The room I was in had a familiar appearance, it resembled the sitting-room I had last remembered being in, but how changed!

I found myself in a chair of wondrous contrivance. Every time I moved my body, the chair took the same form, so that I could recline in any position with a comfort impossible to describe. The room was lighted with a peculiar soft light that seemed to come from above, but yet I could not fathom the mystery of its source. I gazed around. By the side of my chair my eyes rested upon a number of peculiar little contrivances, apparently electric switches. These were neatly labeled "Opera House," "Concert Hall," and other names I did not quite understand.

My curiosity overcame me and I turned the switch labeled "Opera House."

Suddenly the most entrancing sounds of music fell upon my ears. I sat as one amazed, and then I heard a woman's voice, rich and so soft, singing a song I had never heard before. It died away and I was once more in quiet solitude.



Evidently, I thought, this must be some telephonic communication with the Concert Halls, to be turned on at one's own sweet will. The idea was grand.

But where was I? that was the mystery I was bent on solving.

I was about to explore the room and examine the hundreds of other peculiar contrivances when my eye lit upon a magazine lying at my feet. Having been an ardent photographer all my life I was not surprised to find it to be a copy of THE PHOTOGRAPHIC TIMES.

Yes, it certainly was this magazine, but how changed!

Glancing at the cover I was amazed to find it dated December 2nd, 2000. Mechanically I opened its pages and read as follows:

"It seems curious now to look back to the photographic journals of a hundred years or so ago, and to compare them with those of our own day. What, we wonder, would our old photographers have thought of this issue of THE PHOTOGRAPHIC TIMES, now a daily of fifty pages, illustrated on almost every page with photograms in the faithful colors of glorious nature. Ah! that process, what a wonderful

thing it was; we are so used to seeing them now that it is difficult to imagine how our ancestors could have done without them, and contented themselves with the monochromatic productions of those days. How they must have sighed when they saw those beautiful images upon the ground glass screen of the camera, and could not capture them. Turning to the journals of that date, we find eminent scientists stating it to be an absolute impossibility. How far this is true we know, but we doubt if we should ever have made the advanced strides had it not been for the wonderful discovery of that new substance methylbenzomethoxyethyltetrahydropyridinecaboxydhydrochlorate (these chemical names are really getting very confusing; it is time some new system of nomenclature was adopted) which formed the basis of the discovery of color photography afterward brought to perfection by the indefatigable energies and perseverance of so many workers.

"It is, as we say, difficult to realize how our ancestors could have been so self-satisfied with their processes of monochrome photography. It is true we cannot really form any idea of the real appearance of the photograms produced in those days, as they have almost entirely faded away. Even the processes which they called permanent are in a very poor state of preservation, owing in most cases to the poor quality of the paper upon which they were printed.

"Only recently we were shown some photochromograms produced in the $\frac{1}{100,000}$th part of a second, absolute in perfection. It is curious to note the fallacy of our esteemed ancestors in imagining that with a process reproducing nature in all its beauty of color the work of the painter would be gone forever. We now see that the opposite has been the effect. True, it has entirely supplanted the artists of poor ability, but the true born painter with creative genius stands upon a far higher pinnacle now than he ever did before in the history of the world. Photography produces fac-similes of what the eye sees; the imaginative artist of high ability can create beauties that the eye can never even hope to see.

"Photographers now have learned wisdom. They do not attempt to vie with the artist. The two work hand in hand but in different directions.

"Photo-telegraphy is a comparatively modern invention, although as far back as 1893 they evidently had some idea of such a process. To what degree of perfection this marvelous invention has now been brought to was sufficiently exemplified in the battle scenes that were cabled during the recent Franco-Russo-German war, when faithful photograms of the awful carnage were reproduced in our evening papers within a few hours after each event.

"Photography has certainly done great service to newspaper illustration. It is safe to say that there is not at the present time a paper or magazine published without its aid. In the olden days the process was rather a tedious one. A negative had to be made and then a print. This was photographed through a line screen, another negative made, and from this the zinc photo etching produced. Now, however, the prepared zinc is placed direct in the camera and the image thrown upon it through a screen. This is developed, the film being rendered soluble at the parts acted upon by light, and not insoluble, as in the old-fashioned process. The etching is made and the zinc block is ready for the printing press.

"We witnessed a curious performance last evening at the Royal Photographic Theatre. As we saw the actors moving about upon the stage and talking and acting in the most natural manner possible, it was difficult to imagine that what we saw was only a series of enlarged photo-chromograms thrown in such rapid succession upon the screen that every movement was depicted with life-like fidelity. The voices were produced by the phonograph, now brought to absolute perfection. By means of a new polariscopic arrangement the images are seen stereoscopically so that the deception is perfect. We do not think we could ever have realized how marvelous this invention is had it not been for the fact that most of these actors that we apparently saw walking and talking with all the appearance of life, died, in some instances many years ago.

"There is no one now who will doubt that photography has done more toward the advancement of the world than any other science. Think of the countless stars and curious heavenly bodies that have been discovered. Have we not by photography been able to find out the existence and the peculiarities of the inhabitants on the planet Mars. It is doubtful even if flying machines would ever have been made so perfect, had it not been for the chrono photographs of flying animals.

And then let us look at the extraordinary—

* * * * *"

Here I awoke.

Alas! gentle reader, 'twas nothing but a dream.

SNAP SHOTS IN THE SOUTH.

THE TRIALS OF AN AMATEUR PORTRAITIST.

BY VAL. STARNES.



DID you ever know any one who was satisfied with their own photographed portrait? "Vanity, all is vanity," said the wise man of old, and, verily, human nature has changed but little since his day. Occasionally a man may be met with, but rarely, if ever, a woman, who does not think that they are better looking than the camera is in the habit of admitting, but the large majority of persons hold an opinion exactly the reverse in regard to themselves, and more especially their children, particularly if an amateur has had the making of the picture. It is true that the latter lacks the aid toward flattering the sitter that the professional derives from sky-lights and screens, but if the lens be a first-class instrument, and the shadows not intricately out of place, more or less of a likeness is bound to result even from his exposures, though it is a difficult task to convince the patient of the fact. Still, most people are always ready and willing to be experimented on, and in both of these respects our Southern "wards of the nation" and "crackers" differ in no way from the general run of humanity, except that they will criticise and express their disapprobation of the finished print more freely than those who are, to some extent, governed by the canons of courtesy.



"LOOKS PURCISELY LIKE DEY DOES PLAYIN' ROUN' DE YARD YERE, EVERY DAY!"

A couple of years ago I chanced to be staying for a while in a neighboring country village, and when it became generally known that I was a disciple of Daguerre, I could easily have made my expenses, had I had a license and the inclination to do so. Nearly every one in the vicinity approached me sooner or later, and on learning that I was not a professional evinced a willin ness to let me display my skill and prese them with a picture gratis. But as my stock plates was limited, I was forced, as a rule, dodge the issue.

The cook of the house at which I was sto ping, a good-natured, middle-aged negress, w possessed, however, of two little "images God cut in ebony" whom I agreed to "take She was immediately for dressing them up their best and seating them in some abnorm state of discomfort, "like de quality," b against this I rebelled, insisting upon selecti my own opportunity, Watching my chance, at length caught them in a state of nature, to speak. Like almost all such pictures, it w of course under-exposed, and the fence, throu the gate of which they were passing, was high as to shut out t sky, but for absolute nat ralness of pose, and trut fulness to life, the neg tive was simply perfe and I confess it was wi some pride that I show the first proof to t mother.

Innate politeness a outraged maternal pri of dress struggled ha for the mastery for a m ment, and then the latt conquered.

"Humph!" she e claimed, with scornf disappointment and a d sire to smooth over t harshness of her cor ments curiously blended in tone and wor "Humph! Cose I'm much obliged, sir, but don't call dat no pichur at all. *Looks purscis like dey does playin' roun' de yard yere, every da* Why, dey's jest *natchully* ragged an' dirt Thanky sir, *uv* cose, but couldn't you take u over ergin, diffunt? I don't call dat no pich at all!"

I wilted.

My next unavoidable essay was upon the o spring of the colored chambermaid, a quart with not more than four or five years' differen in age between the oldest and youngest. O this occasion, having resolved to confine mys to pressing the button, I yielded to local prej dices in regard to posture, and let the childr get into position according to the promptin

of individual idiosyncrasy, or the supervisory admonitions of onlooking relatives.

I can't say that I became wildly enthused as the latent image responded to the insidious coaxing of the developer, but as it was a genre study the composition of which the subjects, themselves, had arranged, it was not encouraging, to say the least, after printing and mounting some half dozen pictures, and gratuitously distributing them, to overhear such sotto vocal expressions of disapproval as :

"Why, de house don't look no bigger'n er chickin coob !"

"An' dat new muslin curtain don't show up at all."

"*Ef* de man ain't gone an' took my Sarah Ann Louisa parry toed !"

It began to dawn upon me that I was not regarded as a budding Sarony or Kurtz.

Despite these unfortunate ventures, however, I found myself, shortly afterward, pledged to try my hand upon the brood of the washerwoman, who was what is styled in that section "a piney wood tackey"—or "po' white," as the negroes generally term them. This lady wished herself included in the group, but was especially solicitous about having justice done to what she called the baby, whose existing state of infantile loveliness she wished handed down to posterity, for, as she said, "they somehow got sorter hard favored as they grew olderer." And it may be remarked, by the way, that a desire to possess a likeness of the household toddler, to have as a memento in case the pattering of the little feet should some day suddenly cease and be heard no more, is a pathetically ungratified ambition in almost all of the homes of the poor.

But this particular baby, a great lump of a a child, had a face that would break a jail ; it was so ugly that I know it must have ached ; so that I had my doubts of his picture turning out a vision of beauty. But I was committed to the effort, at any rate, and, therefore, went over one morning to the cabin, a quarter of a mile away.

Here, too, I discovered that plans and specifications had been drawn up and entered into for an interior group, with the children ranged in line like a company of soldiers, but as their holding still during the necessary exposure was out of the question, even had I succeeded in finding a rest for my 4 x 5 inches hand box (I had no tripod), I was compelled to veto the programme and insist upon an adjournment to the outer air. It was painfully evident that this announcement detracted at once from the estimation in which I had been previously held. I began to lose caste from that moment.

The old grandfather, who in his shirt sleeves and socks was enjoying a corn-cob pipe in the doorway, shook his head dubiously.

"I ain't never held with this here takin' er pictures," he remarked sententiously. "The world's gittin' on too fast, an' you-all ain't content with what we-all foun' sufficient. An' there's somethin' s'picious 'bout hit, too. When me an' yo' mammy went ter ther State Fair right after ther war, there was a feller there with er tent what took pictures on pieces of shiny black tin, with er red paper kiverin', fur er quarter, an' me an' Sally went in an' sot down an' he taken ourn. I'm boun' ter own," he added with judicial impartiality, "that hit was *like* us, but yo' mammy was standin' on my right side with her left han' restin' on my shoulder, yit in ther picture she was changed roun' ter my *left* with her *right* han' er leanin' on me ! Now, how come that ? *Conjuration* er some kind, sho's you born ! The world's er gittin' on too fast ; you-all's times ain't"—

But at this point we incontinently deserted the sage for the front walk. It was a glaring August morning in a white sand region ; and as the two older children's "best" hats—in order that they might not outgrow them before wearing them out—were several sizes too large, so that they had to carry them in their hands ; and as the baby was clearly under the impression that he smelt something decidedly unpleasant, I knew that a general squint was going to pervade the party. But the immortal bashfulness of the little ones was proof against all efforts at making the best of these unpropitious circumstances through judicious posing, and I was finally driven to snapping them "any-which-a-way."

I have never claimed for the resulting picture a place among the *chefs d'œuvre* of our art. But the mother's portrait is fair, and it needs but a glance at that baby for any stranger to perceive that his facial configuration *must* be faithfully reproduced. No lens yet invented could, of its own motion and with malice prepense, conceive and perpetrate so monstrous a libel upon physical pulchritude. No, the conclusion was inevitable that the baby's picture was distressingly like. But I had gained wisdom from experience by this time, and I didn't expect the mother to think so. And I didn't expect to receive any thanks for my pains. And I didn't receive any.

"Do you mean ter say that's meant fur my chile?" was the first startled protest, without the slightest pretence of acknowledgment, the inborn good breeding of the negro being wholly wanting in this instance—"Do you mean ter tell me that's meant fer *my* chile?"

I did mean to *say* so—to myself; but I didn't mean to tell her so—not just then, at any rate.

"Well!" with immense disdain. And then again, "Well!" an octave higher.

"Let me see it," here put in the grandfather as I edged toward the door. "Ah, I told you so, I told you so. Hit's er newfangled contraption. You don't reckon George Washington or none of them old pattri-arts never had no dergarrytype or photy-graft took, do you? No, siree! They jist wrop therese'ves in their dignity an' showed their scorn er all sich foolishness when er photy-grapher come splurgin' roun' in *them* days. Oh, *I* knows! You can't tell *me* nothin'! We ain't all of us plum ignunt, just cause we don't happen ter come frum ther city an' wear sto' clothes! An' I reckon, yo man, you ain't graduated yit, or ain't the proper kind er instru-*ments*, fur this picture *ain't got no gold ring nor watch c nor nothin' painted on hit! Shucks!*" and passed it on to one of the children, being youthfully ingenuous, displayed a sha faced and rehensi tendenc admire own sun-li ed lineam

I faded f the scen noiseles and rapid possible.

I could tinue to chapter a chapter to melanch tale, diffe only in set and dran personæ; merely counting above evoked a thing b pleasant trospecti Moreov where wo be the us so doing, s these li will recal every ama who re



Photo by Lyd. Sawyer. A GOOD GLASS. Gill Eng. Co.

this Christmas number of THE PHOTOGRA TIMES—unless he has been wonderfully care by partial Fortune—scores upon scores of s lar experiences of his own.

Do they not?



THE INTERNATIONAL YACHT RACE.



"VALKYRIE."

THE international yacht races held this fall will long be remembered in the history of the attempts to recapture the "America's" cup. The conditions of the match were, the cup to go to the winner of the best three out of five races, the first, 15 miles to windward and return; the second, a triangular course of 30 miles, the first leg, if possible, to windward; the third and fifth races the same as the first, and the fourth the same as second race.

The first race was sailed on October 5th; the start was made at Sandy Hook Lightship, as the wind was off the land; the course was 15 miles to leeward and return. It was a glorious day, and amateur and professional photographers were all busy. The little steamer "Chelsea" was chartered by the New York Society of Amateur Photographers, and cameras were ranged all round her bulwarks, giving her the formidable appearance of a miniature man-of-war.

The yachts started in a light breeze, the "Vigilant" getting a little the best of the start. Both seemed to hold their positions for several miles, when suddenly the wind changed almost ahead of "Vigilant." Spinnaker and balloon jibtopsail were taken in, sheets were trimmed flat, and the helm put up for a close reach for the mark. But to the amazement of everyone concerned the boat did not respond, but lay perfectly lifeless, without even steerage way, lying in this condition for about ten minutes.



Photo by W. E. Woodbury. "VIGILANT" AHEAD. Weeks Eng. Co.

Meanwhile the nimble Englishman was making the best of the "Vigilant's" mishap, and by the time the latter got out of the doldrums, "Valkyrie" had established about a mile of a lead in less than half the distance of her first race. Continuing to increase her lead, the English boat rounded the mark over twenty-five minutes ahead of "Vigilant."

However it was soon apparent that the race could not be finished within the time limit of six hours, so that it was declared off, and both boats were glad to accept the services of their tugs, and to be towed back to Bay Ridge.

On the 7th of October the off race was resailed in a light breeze, the English rather out-maneuvering the Yankee Captain for position at the start, and the "Valkyrie" seemed to hold her slight advancement for a few miles, when a sudden shift of the wind to the south gave "Vigilant" a great advantage. She got the first of the breeze, and appeared to carry her luck all the way to the mark, leading by over 7 minutes. In coming home, instead of beating to windward, the shift of wind made it a close reach, thus "Valkyrie" was deprived of the opportunity of putting to the test her best point of sailing, namely, windward work.

However, "Vigilant" won the race, although yachtsmen claim it was chiefly through luck, and that the race was unsatisfactory, and by no means a fair test of the relative speed of the boats.

On Monday, October 9th, the yachts started in a 12 knot freshening breeze, and this race settled at once the undoubted superiority of "Vigilant" over "Valkyrie" on all points of sailing in a good wholesale breeze. "Valkyrie" got the best of the start, but her honors were short lived. "Vigilant" passed her to windward, increasing her lead to 5 minutes at the first, 9 minutes at the second, and 12 minutes at the third mark of a thirty-mile triangular course.

The next race was 15 miles to windward and back. But the wind was too light to finish within the time limit, and after several hours' sailing was declared off.

The last race was sailed in a good stiff breeze and the seagoing and weatherly qualities of "Valkyrie" became apparent; she cut through the water like a razor and appeared to do everything without the slightest strain.

This condition of things continued, "Valkyrie" steadily increasing her lead, and rounded the mark-boat two minutes ahead of the best windward boat ever built.

"Vigilant," after rounding the mark, shook out the reef in her mainsail and set a larger topsail. Great was the wonder among yachtsmen when "Valkyrie" did not follow her example, but it was not until after the race was over that it became known that she had slightly sprung her masthead, and that if she had increased her canvas the mast would surely have gone over the side.

Under the superior spread of canvas "Vigilant" continued to bring "Valkyrie" back.

But after a run of 11 miles "Valkyrie" had still a lead of 200 yards, when suddenly a small tear in her spinnaker was seen to be getting larger, and at once the sail burst in pieces, rendering it useless. "Valkyrie" lads were not long taking it in, but such a catastrophe in a close race rules a yacht out.

Other attempts were made to place a new spinnaker up, but during all the time the "Vigilant" was bowling along at an 11-knot pace, while "Valkyrie" lost fully three minutes by the accident.

"Vigilant" finished two minutes ahead and won by forty seconds on corrected time. Thus "Vigilant" won three races straight, and the cup still remains in our country.

This latest contest has not by any means put an end

to the controversy as to the comparative merits of centre boards and keels in racing yachts. As *The Nation* very correctly says: "The question is as open a one now as it ever has been. Whatever superiority the 'Vigilant' may have shown in the first two races, it cannot be denied that in the final one she came out with only even honors with 'Valkyrie.' In going to windward in a heavy blow, 'Valkyrie' surpassed her antagonist. In running home before the wind there is no doubt that 'Vigilant' showed greater speed. She had passed 'Valkyrie' when the latter's spinnaker was split, but for which accident the English yacht might have won the race by a few seconds on her time allowance. It appears, also, that 'Vigilant's' centre-board got jammed and that she was hampered somewhat by this in her run home. Taking all things into consideration, therefore, it is plain from this final test that the yachts were very closely matched, and that if 'Valkyrie' had carried the additional ballast and greater sail area that she had in her English races, she might have given 'Vigilant' a much harder task to save the cup."

It was the general opinion that the two yachts were a credit to the skill of the two countries which produced them.

Photographically speaking, the yacht race was a great success. There are few subjects which make prettier pictures than a racing yacht under full sail. The grace and symmetry of the whole gives us an unending variety of pictures taking it from every point of view.

The number of photographs taken of the "Vigilant" and "Valkyrie," during the recent contest, must be immense.



ON BOARD THE PHOTOGRAPHERS' BOAT.
(According to *The Commercial Advertiser.*)

RECREATIVE PHOTOGRAPHY.

III.—Artificial Snow Scenes.



PHOTOGRAPHS resembling snow scenes can readily be made with an ordinary landscape negative.

The usual plan is to sprinkle a little red color over the negative by means of a hard brush charged with the coloring matter. But, as the writer points out, the only drawback to this method is that the flakes all appear to have tails. He recommends the following as a better plan. The negative is coated with a thin, sticky layer of 1 part of gum damma and 5 parts of ordinary turpentine. A dry color, like lampblack, for instance, is then placed in a hair sieve and the latter held at some distance from the negative and shaken until sufficient of the color has fallen flakelike down upon the negative. When dry, the plate is placed in a printing frame, and a proof made. If satisfactory, the color is fixed to it by a coating of varnish; if not, the whole can be washed off with turpentine, and the operation repeated.

A hard, under-exposed negative gives a good effect and, with a little red coloring matter, it can be further improved by touching up parts to represent the falling snow.

IV.—Making a Positive from a Negative.

Take an under-exposed negative, one that is, in fact so under-exposed as to be useless as a negative will answer the purpose well. Thoroughly well wash it, to entirely remove any trace of hypo, and then soak it in saturated solution of mercuric chloride. This turns the image quite white, and it is then well washed in several changes of water and dried. Afterward it can be mounted in a frame with a piece of black velvet or cloth behind it, forming a most delicate positive picture resembling a picture on ivory or opal.

V.—Making a Plaster Cast from a Negative.

After the negative has been washed, remove it from the water and remove all superfluous moisture with some pieces of blotting-paper. Then gently heat the plate over a lamp or fire, care being taken that it is not made too hot, otherwise the gelatine will melt and run. The effect of a gentle heat is to cause the dark parts of the plate to swell up in high relief, so much so, in fact, that a cast in plaster-of-paris can easily be made.

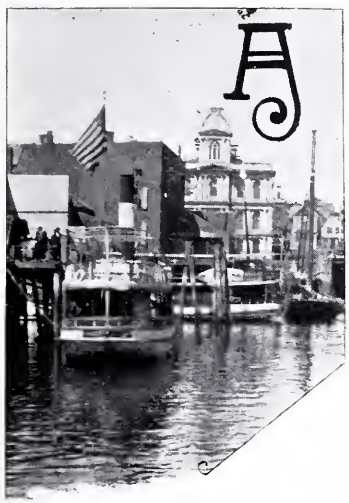
VI.—Photographs without Light.

A curious experiment, showing that a photographic dry plate can be otherwise affected than by light, so as to form an image upon it, is the following:

An image of copper in relief is necessary—a penny will do for this purpose. Place an unexposed dry plate in a normal pyro developer, and on it lay the copper coin. After about five minutes or so remove the coin and wash the plate, when a perfect image of the penny will be found on it.

A NEW USE FOR OLD PLATES.

By C. C. Vevers.



A QUESTION which often troubles both the professional and amateur is "What shall I do with all these waste negatives?" The plate maker won't buy them, the rag and bone merchant offers a mere trifle for them, they are too small for hot-house or studio skylights, and the wife calls them rubbish, and wants to throw them into the dustbin. Surely they can be applied to some useful purpose, but I don't know what. Then I'll tell you one useful and artistic method of employing them, and find you a little occupation for winter evenings.

First remove the films from a batch of waste plates or negatives by means of hot water and soda, acid, or any other method you employ; rinse the plates in clean water, and dry.

At the paint stores purchase a small quantity of dry color—bronze green, quaker green, vandyke brown or Indian red, whichever you prefer—to 4 ounces of which add 2 drachms of powdered gum arabic and mix with water to form a paint. (The Indian red paint, by-the-way, forms a most excellent backing for plates to prevent halation.) With a broad camel-hair brush cover one side of the plates evenly with this paint, and allow them to dry. Next make a stencil of zinc, tin or thin cardboard having a square, oval, or other shaped opening, thus:



After the fashion of a "mask" used in printing, lay it upon the painted side of the plate and run a piece of stick, sharpened to a point, round the opening. Now clean away the paint inside the line thus made, and varnish in the usual way with negative varnish. Take a print—preferably a vignette—the size of the opening on plate, immerse it until limp in a weak solution of gelatine, and squeegee in contact with the prepared plate.

Get some nice brown paper, or, better still, some fancy enameled paper of a dark color; glue a sheet to the back of the print and painted portion of the plate and fold it over the edges of the glass, leaving a neat border from ⅛ inch to ¼ inch broad on the front of the glass.

Now you have your photograph tastefully mounted and framed; and the print being in optical contact with the glass and protected from the air, will be preserved from fading much longer than when simply mounted on card. To make the frame complete get a supply of small brass rings at the stores, pass a couple of inches of tape through one and glue it to the back of the frame, when it can be suspended on the wall; or it can be made to stand by gluing a cardboard strip to the back. The whole, when complete, forms one of those little fancies that go to make the home more beautiful.

AUNT JANE AND THE CAMERA.

(A True Story.)

By S. F. H. Hewitt.



ONE day Aunt Jane decided to have her picture taken and came to my house, about four miles distant, on horseback, for the purpose. The camera was to her some mysterious thing, and excited her curiosity, She must see into it. At first she could see nothing, but after instructing her how to look at the object I had placed in front, she was much perplexed to find it upside down. "But," said she, "it is upside down. Be I to be taken that way?" When I told her she would, she declared she would never have her picture taken standing on her head. "I won't be taken that way. Can't you turn the thing over?" I informed her that would make no difference. I tried to show her her picture would be right side up when finished. But it would not satisfy her. I even took some pictures that were finished and turned them upside down. When I had done so, she said, "Why not turn the thing over in the first place and be done with it?" I then took a looking glass, and getting her to look into it, turned it over and over in order to show her her face would always remain in one position. But no, nothing would do.

She thought there was some fraud somewhere, and that when I took the picture, I turned her over head first in the camera. This was more than the dignity of poor Aunt Jane could bear. I was treating her with some kind of disrespect unworthy of her. She was going to stand on her feet and have her picture taken and not be turned topsey turvey. I had insulted her, and with a proud, haughty air she marched out of the room into the next

In the adjoining room I could hear Aunt Jane protesting and some others who had come in laughing. She was *excited too*. I could hear her say: "Do you think I am going to stand on my head even to have my picture taken. No, sir!"

In about a half hour Aunt Jane appeared again. I noticed she had tied tight around the bottom of her dress a rope. Upon entering the room she said: "Now, sir! you can take my picture and I don't want no nonsense about it either. I reckon my dress will stay where put too."

TWO OF A KIND.

E'en though the statement make a stir,
The fact none can gainsay;
The footpad and photographer
Each has a taking day.

THE SPIRIT OF THE FAMINE.

By J. Will Barbour.



FRAU SMEALIG, the young wife, awoke with a start. The sound she heard was the sound of singing—the harsh, wild chant of the Russian *Moujik*. The Christmas morning was about to dawn, and the waning moon, still lingering on the edge of the west, together with the first faint glow of approaching day from the east, made a light that filtering through the frost-laden window pane, rendered just visible to her the fittings of the little room that for some months past she had called her home. "Carl," she called, as she touched the arm of her husband, who still slept, "Carl, the people are singing on the highway. Can it be that food has come to them in the night. Come, let us listen." Throwing their great robes about them, the young German and his wife went to the window.

"Hail to the Saviour, the Mighty Provider. Praise to the Saviour for life-giving food?"

The words came clear and sharp from the mouth of a strong-lunged singer, while a deep-voiced companion echoed—

"Hail to the Saviour for life-giving food!"

The two men could now be seen coming onward in the dim, shadowless light, carrying elevated on their spears the body of an animal.

"They are Ivan and Stepka, the hunters, returning from a night chase, rejoicing in having slain a bear that they may have Christmas food for their little ones."

"No, it is not a bear, it is a wolf. Can it be that it has come to this, that the flesh of the gaunt, unclean, and perhaps rabid wolf is to be used as food by these people!"

As Carl spoke, the red glare of torches flickered along the latticed window frame, and another procession from the opposite direction came in sight. The hunters, as they came opposite the window, ceased their song and stood aside, while the doleful chant of the mourners grew louder and louder as they approached. The young Frau Smelig drew closer to her husband.

"This is a funeral cortège, little one. I have heard that these people will not, if possible, allow the Christmas sun to shine upon a house containing a corpse, hence they go thus early to deposit the remains in the vaults of the church."

"Others were buried but yesterday, and here are more than one. Three—five—five people have died in the town during the night. Carl, surely the *famine* is upon us."

The town of Unskipka is the centre of a district lying between two ranges of mountains that border the great steppes of Russia. By it flows a river that is an easy waterway in summer to the outside world. It is then that the merchants arrive and open their booths, th peasants from far and near come in, and the great fa makes business lively for weeks at a time.

Carl Smealig was a born artist. "Photograph could always be relied on to keep the pot boiling," h said, but it was with paint and canvas that he hope to achieve fame and honor. No photographer had eve been located in the Unskipka district before, and whe Carl arrived and fitted himself a skylight, he foun trade, especially during the fair season, up to his high est expectations. The quaint costumes of the mountai peasants were a source of never-ending pleasure to h artist's eye, and numerous were the hand-camera pic ures he made of them to be worked up in oil during th dull winter season.

After the fair the great drought set in, and all crop were burned up in the ground. Stories of coming dest tution began to be heard, and government aid wa asked for, but there were other and larger districts tha were thought to be in much greater need of assistanc and the little valley must wait.

It was a scanty breakfast that was eaten by Carl an his wife that morning, but they ate it thankfully, know ing that it was more than hundreds of others in th town could boast of. Carl had laid in a good supply provision before the cold weather set in, but the fa becoming known, hungry children, crying and beggin for bread, had besieged their door, and not having th heart to turn them away empty, they had given it awa little by little, till now they really began to fear for the own maintenance.

"I had a dream last night, Carl," began the little wi as she poured out the tea that was the main part of th meal, "I dreamed that we were back in the Fatherlan and all around was glad and glorious Christmas chee Uncle Casper and the cousins from the Grosberg we there, and the Christmas tree was lighted, and we we eating, yes, eating a real old German Christmas dinne And to think that it was only a dream; here we are this cold outlandish country, and oh, Carl, I wond what has become of our Christmas box," and for th first time the brave little woman buried her face in h handkerchief and cried.

Just then a timid knock was heard at the door. "'T the children coming again. We told them yesterday w had naught to give them. Why do they come? The tears and hunger wring my very soul." Carl arose an opened the door. A hollow-cheeked girl stood befo him. "Oh, good sir," and she bowed low before hin "I ask you not for bread,—see I have a little cake le and am not yet *very* hungry, but here you have," poin ing to the case in which Carl displayed his photograph specimens. "here you have the image of my own de father." The icy wind blew the hair in wild elk loc about her face, pondering it with drifted snow.

Carl drew her in and closed the door.

The picture she had pointed out was a camera stu Carl had made the previous summer in the mountain of a stalwart woodsman leaning on his axe, with th intention of some day painting from it. He had thoug it a good thing photographically, and had put it in h show case

Receiving no immediate response the girl brushe back a tear and arose to go. "I never thought to s him more, but here you have made his image by yo

art. Give it to me, I beg of you, kind sir. I offer you for it all I have, my little cake of bread, and some day I will pay you ten, twenty roubles,—all that it is worth."

Carl opened the case and put the picture into her hand. "Keep the bread, my girl," he said, as she held out to him the poor morsel, made of bean flour and wood fibre mixed with hemp seed oil. "You will have need of it yourself. I ask no pay for the picture."

Clasping her treasure to her heart she left the house. Turning she made the sign of the cross with her finger. "May the blessing of the Virgin be on you and yours"

About noon a company of men who had gone several days before to try to make their way through the mountains, returned exhausted, saying that the passes were all blocked, and there was no prospect of immediate relief.

The hungry men began to assemble in the market place. A rumor was spreading among them that the government storehouse at the barracks was full of food. Some one called out that they go and demand that it be given to the starving people. They became a howling, angry mob. "Bread, bread," they cried. They hurled themselves against the doors of the fortress. "Bread, bread in the name of Christ!" But the Commandant, knowing the strength of his oaken doors, remained quietly within, giving no heed to the tumult without.

Carl and his wife were watching the proceedings from their window. "It's the spirit of the famine," he cried. "Here—my camera, quick. I will paint it. I have the inspiration it shall be my masterpiece."

With the mob, its leader, if leader it could be said to have, was a rough, long-bearded monk, a hermit, whom the famine had brought down from his den in the mountains into the town. His quick eye caught sight of the camera at once. He raised a shout and pointed toward it. Carl withdrew it at once. "Listen, oh my children," and every voice was hushed, for the man was considered holy. "Do you ask why the Great White Czar turns his face away from you? Why the saints hear not your prayers or answer them! Why famine and death come upon you? *There* is the cause. You have allowed this man to come in among you with arts of witchcraft, to make unto you images of yourselves that you may adore them, and not those of the blessed saints who have watched over and protected you. Let his life be given as a sacrifice to an outraged God."

The young frau shrank back from the window in terror. The crash of falling glass was heard, as the frenzied moujiks broke open the show case, tearing up the pictures and trampling them into the snow.

"Do not fear, little one," said Carl; "these men have been my friends. I will go down fearlessly and speak to them."

"Stay, Carl, stay, they are *mad*, they will tear you up as would wolves in the forest."

But he was gone. Once in the street Carl found that the mob was blind to reason.

"Let him die!" they cried.

"Let his body be given as meat to the people!" shouted a savage man with bloodshot eyes, who ruled under the influence of the fiery vodka liquor that he had been drinking.

Carl was helpless. The crowd forced him up against the wall of the barracks. All he had to defend himself with was a small pocketknife.



Photo by Will H. Cadby. Photochrome Eng. Co.

STUDY OF A CHILD.
(Medaled, London, 1893.)

"Aye, let his body be given as meat to the people!"

"Stay!" It was the voice of a young girl. "You shall not, dare not, touch him. His art is good and not evil. See, it has given back to me my father who was dead."

The hands that were raised against him were stayed in surprise. The hermit seized the girl to pull her away.

But hark—it is the sound of bells. With cracking whips, and reeking horses, ten sledges loaded with supplies were coming down the road. Unskipka was relieved at last. All thoughts of murder were forgotten. Some sank down to pray to their patron saints, while others gazed in rapture at the welcome sight. The peasant girl, not realizing that the danger was over, still stood in an attitude of protection before Carl, while the monk drew back, counting his beads.

The young Frau Smealig had gazed with a horrified fascination at her husband's danger, but now, as the sun burst forth, brightly illuminating the altered group, his words came back to her: "It's the spirit of the famine. I shall paint it. It shall be my masterpiece." Her hand was on the camera. "Click!" the scene was caught.

There was joy in Unskipka that afternoon. Little starving children had Christmas meat to eat and Carl and his wife were happy with the rest, for in one of the sledges came the Christmas box from home. Moreover, they had the negative taken at the moment of relief, from which Carl afterward painted a splendid picture. On his return to Germany it brought to him the fame he had hoped for. He is never tired of telling the story, and as long as they live, he and his wife will never forget their Christmas day in Russia.

PHOTOGRAPHY FOR HOUSEHOLD DECORATIVE PURPOSES.



HOW few amateur photographers there really are who thoroughly enter into the enjoyment of the art-science as a pastime. Many of these perhaps must be excused for the reason that they are ignorant of its capabilities. Indeed, how many there are who imagine that the art of photography consists in making negatives and, from these, prints—good, bad and indifferent. All the friends and relations are called into requisition "to be taken." At first they do not mind, thinking it a fine thing to have a portrait made for nothing; but when they see the result they very naturally object to be caricatured, and the amateur loses many a friend, and the maiden aunt leaves all her money to the home for stray cats. If he is a married man and delights in a happy, cosy home, neatly and artistically decorated, photography can be of very great assistance to him—how much, few realize. There are a thousand different ways in which it can be of use, and the photographer has always before him some permanent record of his travels and skill.

Let us take, for instance, the making of transparencies.

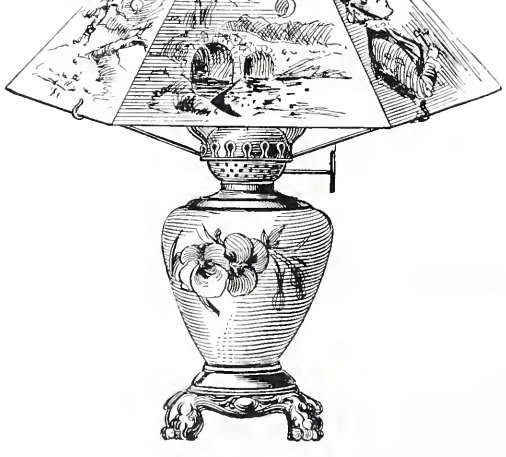


FIG. 1.

These are very simply made. Carbutt, I believe, supplies plates ready made for the purpose. Every amateur becomes possessed after a time with a large number of negatives, good, bad and indifferent. Let him carefully go through these, selecting all the printable ones and pictures that he mostly admires. From these, transparencies can be made, either by contact, or enlarged or reduced in the camera. Persons residing in cities often have a nicely furnished room utterly marred by an unsightly outlook. Perhaps a view of chimney pots and dirty back yards. In such a case all that is necessary is to fit in the lower panes of glass some neat photogra on glass backed with thin ground glass. These ca puttied in, or they can be fitted in neat brass fra and hung up against the windows.

The craze of the present day appears to be in direction of bright and gaudy colors, except with more highly cultivated, who recognize the artistic v of unobtrusive colors and cate tints. A photograph, vided it is a good one, is alv to be preferred to colored urcs unless the latter ar good artists. We once structed with a half doze transparencies a very n lamp shade. Some idea can be obtained from Fig.



FIG. 2.

A brass frame is first structed, and any wire m will execute this, so as to the six or eight pictures. transparencies are made, down to the size and shap quired and fitted in small b tabs at the back to keep t in their places behind the tr parency; then ground gla the same size and shape i ted. The glasses should fit too tightly in the brass frames or on expandin the heat they will crack.

A hall lamp can be treated in the same way, colored glass removed and photographic transparer substituted. Photos on glass can in the same wa used for a variety of other purposes, such as fire scre candle shades, etc.

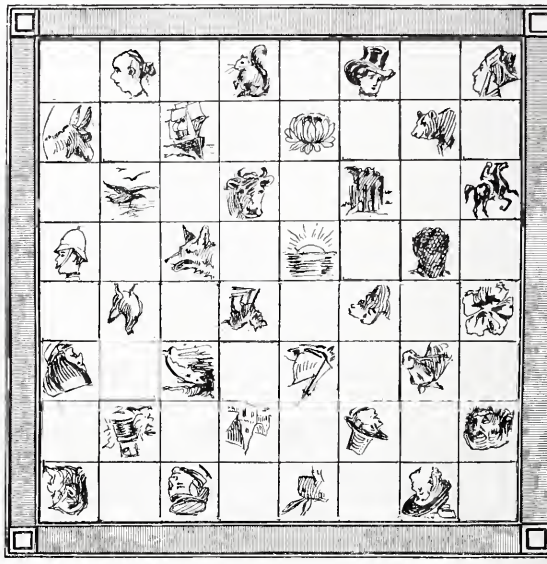


FIG. 3.

Next look up your stock of prints, scraps, waste pr etc. Often from a large, spoilt picture you can g neat little bit about a couple of inches square or l look up all these and from them a photographic ch board can be made. Our illustration in Fig. 3 is tended to show what is meant, although our artist not been happy in the selection of his material to re

sent photographic views and portraits. First mark out a square the size you wish the chess-board to be. Divide it into sixty-four equal squares and draw a neat border round it. Thirty-two of the squares are then neatly pasted over with selected photographs as varied as possible in subjects. Sixteen are fitted one way and sixteen the other. Our illustration is incorrect in this respect. The sixteen pictures should be placed the right way on the sixteen squares nearest to each player. When the photographs have all been pasted on and dried the whole is sized and varnished. If, however, it is desired to preserve this photographic chess-board, and at the same time to use it frequently, a better plan is to cover over with a glass plate and bind all round the edges to prevent dust from entering.

In a similar way a neat card table can be manufactured. Fig. 4 is intended to illustrate the top of the table covered with photographs and protected by a glass plate



Fig. 4.

A little consideration will no doubt give various other similar ideas to the reader.

Those who can work the carbon process successfully have it in their power to transfer photographs in various colors to all kinds of supports. For instance to wood. The panels of a door can be very considerably improved by the insertion of photographs on fine grain wood, varnished.

Pictures can also in this manner be transferred to plates, china and ornaments of every description.

Various methods of printing on silk and various fabrics have from time to time been given. Perhaps the best for our purpose is the primuline process, as various colored images can be produced, with but little trouble, on all kinds of material.

These the amateur can hand over to his better half or female relations, who with the natural feminine abilities will produce all sorts of pretty artistic articles for decorating the room.

We are well aware that we have by no means enumerated one half of the various means in which photography can be employed for decorating the house, but hope at least to have given the reader some idea of what its capabilities are, and to continue the subject at an early date.

SOME HOLIDAY BOOKS ILLUSTRATED BY PHOTOGRAPHY.



PHOTOGRAPHY has revolutionized book illustration. In former days fine art books and periodicals were entirely dependent upon the engraver's skill for their illustrations. Steel and wood cuts only were to be seen in the illustrated publications, whereas now they are the exception. "Half-tone" and "process" cuts, as they are popularly called, and photogravures, which are photo-engravings on copper, are now most used for illustrating holiday and other fine editions of books and periodicals.

The transition from the work of man's hand to that of the camera, for illustration, began several years ago, and, at first, was very gradual. Later, however, the greater popularity, and saving in cost, of the sun's engraving over that of the steel or wood artist became so manifest that one publisher after another adopted the new methods.

Now, nearly all of the holiday books advertised in current periodicals are illustrated by photography. The illustrated magazines, both weekly and monthly, are full of "half-tone" photo-engravings, some using an occasional woodcut still, but more employing only the photographic processes.

It has been our pleasure to examine a number of the more remarkable holiday books illustrated by photography and offered the public this season, and we are glad to report a decided improvement in the methods employed.

Photogravure is the favorite illustration for the finest holiday books. Many new books, especially those of travel and description, are illustrated in this manner from original photographic negatives. Special new editions of standard old works are also embellished with photogravures, sometimes from original photographs, and again from copies of colored and black and white work by artists. The photogravure lends itself especially well to work of this kind, for it can be printed in any tint, and preserves the effect of an original painting or drawing.

One of the most attractive books illustrated in this way from drawings by an artist is the new holiday edition of "Meh Lady," by Thomas Nelson Page, and published by Charles Scribner's Sons. The illustrations are from drawings by the well-known artist, C. S. Reinhart, and are beautifully reproduced. They are seven in number, and all represent the spirit of this classic "Story of the War" to a most satisfactory degree.

Houghton, Mifflin & Co., have long used the photogravure processes for illustrating fine editions of their new and standard works, some of which we have had the pleasure of introducing to our readers. But they never have exceeded in beauty the superb new holiday edition of Longfellow's "Hanging of the Crane," which

they now offer the public. The illustrations are eight in number, all photogravures and from the best work of many well-known artists. They are all worthy studies for ambitious photographers. The press work and binding is of course faultless, emanating from the source it does, and altogether this little holiday book makes one of the most satisfactory Christmas gifts a photographer, or anyone, could give or receive.

The same may also be said of the special illustrated holiday edition of Mrs. Jewett's classic "Deephaven," issued by the same firm. Its illustrations are "half-tones" and are from the work of Charles and Marcia Woodbury. They are many in number and all are good. They represent the work which the camera can do at its best, and are full of hints and suggestions for the photographer.

"The Queen of the Adriatic; or, Venice, Medieval and Modern," by Clara Erskine Clement, comes to us from Messrs. Estes and Lauriat, of Boston, in a beautiful crown 8vo volume, bound in white vellum, and illustrated by twenty full-page photogravures, all from original photographs. The frontispiece is a panorama from the Campanile of St. Mark and is a remarkable specimen of the photographic art. Other pictures are of the Cathedral of San Marco, The Bridge of the Rialto, The Bridge of Sighs, The Ducal Palace, The Horses of St. Mark, The Campanile of St. Mark, and of other famous and pictorial subjects, noted in romance and history. It is a book which a photographer, with the slightest appreciation of the beautiful, would delight to see and possess.

Two books, a little different in the method of illustration, but equally attractive and interesting to photographers, are Mrs. Alfred Gatty's "Parables from Nature," illustrated by Paul De Longpié and issued by G. P. Putnam's Sons, of New York. They are in two volumes, first and second series, and make beautiful holiday books to or from photographers. The illustrations are from the work of man's hand, of course, but are reproduced by photographic process and most beautifully, too.

It cannot be out of place to conclude an account of "Some Holiday Books Illustrated by Photography" with a reference to "The American Annual of Photography and Photographic Times Almanac" for 1894, devoted, as it is, exclusively to photography, with its twenty-five full-page photographic illustrations, of which two are actual photographs (aristotypes); one, a photograph in colors; another, a superb photogravure, several high-grade photo-gelatine pictures; and innumerable "half-tone" photo-engravings. It is the photographer's special holiday book, his *vade mecum*, his Baedeker's Guide.



Photo by W. D. Welford. Weeks Eng. Co.

TORBAY REGATTA.

OUR PICTURES.

THE photogravure frontispiece entitled "S Claus" is the work of Miss E. V. Clarkson, a undoubtedly a remarkably fine portrait study resenting old Father Christmas bearing the of toys and presents to gladden the hearts of the little c

"Chianti," by the well-known amateur photograp Mr. Alfred Stieglitz, possesses many points of attrac to which we would call the attention of our rea First, it is a fine piece of composition. The natural of the posing and the arrangement combine togeth form a most artistic picture. We wish, howeve specially remark upon the excellence of the reproduc It is printed in no less than five different colors or t a new process that has been perfected by the Ph chrome Engraving Company. The blending of colors is perfect and the proofs have already been n admired by some of the leading artists and publis of this city, who consider it the finest thing of the that has ever been produced.

"A Winter Scene in Switzerland" is an exce half-tone reproduction, by the Gill Engraving Co., picture by Mrs. E. Main. A description of the life work of this lady, who has recently become so famou photographic circles, will be found on page 732.

"A Portrait Study," on page 735, is by the renow Hofphotograph, Friedrich Müller, of Munich. T who attended the recent exhibition at Philadelphia no doubt recall the excellent portrait studies of this tographer, who has made for himself a world-wide utation as a portraitist.

"From the Dry Process to the Wet." We have a sample of the work of Charles Scolik. As a study perfect. Herr Scolik's work is known wherever pho raphy is. We have already had the pleasure of re ducing some of his work, and hope in an early numb give many more excellent samples.

"A Good Glass" is an attractive picture by the known English photographer, Mr. Lyddel Sawyer, has received a very large number of awards for his cellent and artistic productions. We shall have n more to say regarding this work in an early issue of magazine. The reproduction has been remarkably executed by the Gill Engraving Co.

"Study of a Child," by Mr. W. Cadby, is a pictu every sense of the word, and received a medal at the exhibition of The Photographic Society of Great Bri The delicacy of the drapery has been perfectly prese in the half-tone by the Photo-Chrome Co

Other pictures in this number serve to illustrate articles in which they are included, and require further description here.

Attention must decidedly be directed to the exce little initial letters and tailpieces. These are the w of The Weeks Engraving Co., from little bits cut some of the pictures entered for our recent hand-car competition, except the pretty little photograph of sw on page 744, which is by M. C. Reid, of Wishaw, S land. Great praise is due to this firm for the art manner in which they have reproduced them.

For the two little humorous pictures on page 74 are indebted to the Gill Engraving Co.

As a sample of the present perfect state of perfec that photo-engraving processes have been brough we think this number will be appreciated.

THE HUMOR OF IT.



A Swindle.—*Old Lady* (who has just received some vignettes)—Well, the swindling wretch! Here he's sent me the photographs I paid for and they're all faded round the edges already.

Nature's Gift.—*Applicant*—Want a photographic operator, sir? I am a very succesful one; my sitters always look pleasant.

Photographer—I see, they look at you and naturally smile.

A Paradox.—*Customer*—Can you make a successful picture of me, do you think?

Photographer—Although I say yes, sir, I shall also answer you in the negative.

He Got the Job.—*Lady* (age doubtful)—For how much would you take me for?

Photographer—For about seventeen, madam.

No Trust Here.—A photographer out West poses his sitters and then instructs them to look up at a notice at the wall which runs: "In Providence we trust—everybody else spot cash."

It is rumored that an English scientist has invented a patent reversible photo frame for the latest style of naturalistic pictures. A picture of the "Sunset on a misty morning" order can at will be reversed to represent "Sunrise on ditto."

THE REASON WHY.

"Who is that conceited-looking man over there giving himself so many airs?"

"That, oh! that's an amateur photographer."

"Indeed, and are all amateur photographers like that?"

"Oh, no! but that one has just been awarded a medal at the Bumbleton Exhibition."

"Really! and was his picture so beautiful?"

"I can't say, I'm sure; but it appears it was what they call a naturalistic effect and somehow it got hung upside down. The judges didn't know what to make of it, so they gave it a medal to avoid any dispute."

A PROFESSIONAL SITTER.

American.—"Well, John, still in the laundry business?"

John.—"No; me gettee better work, better payee. Me professional.'

"You are in a profession, are you? Well, what is your profession?"

"Sittee flo photoglaph flo Chinamans what want to legister."—*New York Weekly.*



COMPLAINING OF A DRY PLATE.

THE ANNUAL PROBLEM.

HE.

I know not what to send Elise,
Perhaps she'd like a *bonbonnière*,
Perhaps a jewel-box would please,
Or else a book in binding rare.

The matter really makes me fret,
I wish I knew just what is right,
Perhaps a pretty writing-set
Would fill the maiden with delight.

But all perplexity I'll end
(Let not my troubles make you laugh),
A silver frame the maid I'll send,
And in it place my photograph!

SHE.

I know not what to send to Ned,
Perhaps a knite he'd like to get,
Perhaps he'd feel much comforted
If I'd give him a smoking set.

I'll think the matter o'er again,
Man's taste sets me a-wondering,
A card-case or a fountain-pen
Would be perhaps the proper thing.

What worries Christmas gifts attend,—
All sense of peace it seems has fled
Selecting them,—I think I'll send
My latest photograph to Ned!

Nathan M. Levy.

Photographer.—"Mr. Brown, here are the photographs of your son Reginald."

Mr. Brown (admiringly).—"They are very good, very much like him. Are they paid for?"

Photographer.—"They are not."

Mr. Brown.—"That is still more like him."

"I feel like a photographer," said the thief, as he proceeded to take a picture.



A Case for Divorce.—"I am wedded to art," he said, as he was showing his friend some of his latest photographic atrocities. "Well! if I were you," said the friend, gazing at the pictures, "I think I would get a divorce, for it's clear she has entirely deserted you."

THOSE GIRLS.

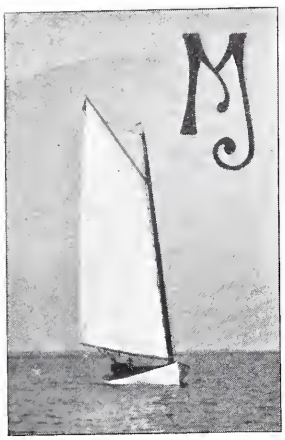
Clara.—"Here is my latest photograph, dear. How do you like it?"

Mamie.—"Oh, perfect, love; the features are quite classic."

Clara.—"What is classic, dear?"

Mamie.—"Oh, anything very old, love."

Notes and News.



MERRY CHRISTMAS!

How do you like our Christmas Number?

Are you a subscriber to THE PHOTOGRAPHIC TIMES!

If not, don't you think it a good time to begin?

The first edition of this number of THE PHOTOGRAPHIC TIMES is 5,000 copies.

The publishers will be pleased to send a sample number to any address sent in by a reader.

Read the book reviews in this number, and please tell the publishers where you saw the notice, when writing to them.

Old Eikonogen Developer makes a good writing ink that does not corrode the pen. First boil it and then decant the liquid.

The New Volume.—We are going to make the volume for 1894 eclipse all preceding ones. Don't fail to renew your subscription.

In photographing figures or groups, if the presence of the camera can be detected upon the faces, then the picture is valueless.

A subscriber from Keokuk, Iowa, writes that he "notes a great improvement in the reading matter of THE PHOTOGRAPHIC TIMES since a year ago."

Examine the advertisements in this number, and when writing to any of them concerning the goods advertised, kindly mention THE PHOTOGRAPHIC TIMES.

News for Beginners.—Those who have only recently commenced the study of photography will find much to interest and instruct them in the forthcoming numbers.

Have you procured a copy of "The American Annual of Photography and Photographic Times Almanac for 1894" as yet? It is "brighter than ever," as the advertisement states.

Reversal of the Image.—It has been calculated that it requires an exposure of over three hundred times the normal to cause a reversal of the image and produce a positive direct in the camera.

To restore negatives that have turned yellow with age immerse them in a weak solution of bromine in water and then expose to sunlight. When clear, thoroughly wash in alcohol and finally in water.

"The Old Stand-by."—There seems to be a decided movement on the part of professional photographers toward pyrogallol. Many old photographers report that after trying the later developers they have returned to pyro, which they claim after all is the "old stand-by."

May we ask you to write us a letter letting us know how you like this magazine? We are always glad to feel that our efforts are appreciated, and if possible that you may be able to give us suggestions for further improvements. We shall always be pleased to consider them.

It will pay you to examine the list of premiums given for subscriptions to THE PHOTOGRAPHIC TIMES. For instance, "The American Annual of Photography," alone, is 50 cents; THE PHOTOGRAPHIC TIMES for one year $5.00. A subscriber can obtain both for the price of the latter, viz., $5.00.

A work of art is a work of order, and if the artist is to put the stamp of his own mind on his work, he must arrange and modify and dispose of his materials so that they may appear in a more agreeable and beautiful manner than they would have assumed without his interference.—H. P. ROBINSON.

It is stated that metol is not poisonous as complained of by so many, but that it is the large quantity of potash that is used with the developer that affects the skin and causes inflammation. If soda is used instead, the effects, it is said, will not take place.

It will be well to remember that the more simply and broadly foregrounds are treated the better will be the result. Indeed, it cannot be too strongly impressed on the photographer that the more simple his subject altogether—if he aims at fine art—the better it is adapted to his means. The best painters are often content with the simplest subjects; the inexperienced are too apt to select the most ambitious themes.—H. P. ROBINSON.

A writer in the *Bulletin of the Italian Photographic Society* gives the following hint for doctoring under exposed prints: Slightly under-exposed negatives can be made to yield better detail and less harshness of result by immersion in a dilute solution of a bluish green dye. The gelatine film absorbs this coloring matter in immense proportion to the amount of reduced silver that forms the image. The denser parts, therefore, absorb far less than those more transparent, the result being the modification of excessive and hard contrasts.

H. P. Robinson never uses but one form of developer. It is as follows:

No. 1.

Pyro	1 ounce
Citric acid	40 grains
Water	7½ ounces

No. 2.

Bromide of potassium	120 grains
Water	7 ounces
Ammonia, .880	1 ounce

Take three ounces of water and add one drachm of No. 1 and No. 2.

Correspondence.

PICRIC ACID.

To the Editors of THE PHOTOGRAPHIC TIMES:

GENTLEMEN—I contributed an article on "Some Uses of Picric Acid in Photography" to "The American Annual" for 1894. At the time it was written I had not noticed that Mr. George T. Harris had already recommended picrate of ammonium for screens to be used in orthochromatic photography.* His method is somewhat different from mine, but any value there may be in the suggestion to use picrate of ammoninm for color screens is due to him. I am sure that, if readers once give this color a trial, they will perceive how superior it is to most recommended. I wish that some one would describe a method of incorporating picric acid, or picrate of ammonium with negative varnish, as I believe a somewhat better film would result than with gelatine.

In enlarging, a yellow glass cap for the lens is a great convenience in facilitating the adjustment of the paper. Patent plate coated with picrated gelatine is excellent for this purpose. It is not advisable, as some recommend, actually to do the focusing through the yellow screen. That should be done with the unobstructed lens; but, whenever it has been done, the yellow cap should be placed on the lens, when the paper can be very readily adjusted in position—I am here talking particularly of enlarging on gelatino-bromide paper.

TOKIO, JAPAN. *W. K. Burton.*

TRIANGULAR STOPS.

To the Editors of THE PHOTOGRAPHIC TIMES:

GENTLEMEN—Some time ago I contributed an article to your magazine on the use of a three-cornered stop, to obtain a greater exposure for the foreground than for the clouds and distant landscape. I notice in a contemporary that my article is ridiculed. If I err I am happy to think I do so in good company, for I notice that the matter is treated upon by several able photographers and scientists.

I am perfectly aware that theoretically I am wrong. The shape of the diaphragm aperture has in theory no effect upon the illumination of certain parts of the picture any more than if we stick a postage stamp on the centre of the lens it will affect the centre of the image. It has only the effect of reducing the brilliancy of the image equally over the whole. At the same time, in justice to myself, I must state that I did not write the article in question without careful experiment. In making two photographs at exactly the same time, or with the same equivalent exposure calculated on the relation of the triangle to the circle, I certainly found a marked difference between the two results. In photographing mountainous scenery, I secured the mountains and clouds in the picture, together with a correctly exposed foreground, which with the circular diaphragm were entirely lost.

There are many points in photographic optics where theory and practice do not seem to work together. This is no doubt due to the fact that there are other factors which we either ignore entirely or only partly understand. As an instance I will mention Abney's recent investigations, which entirely upset the theory that the exposure necessary is in proportion to the square of the distance. In practice this is not so. If we take a piece of bromide paper, for instance, and expose it one second at 1 foot from a gas flame to obtain a correctly exposed image, theoretically we require to expose it for 400 seconds at a distance of 20 feet. In so doing, however, a much underexposed picture is the result. We require nearly three times this amount.

Here theory and practice are undoubtedly at variance. Is it not possible that the same may be the case with the triangular stop?

I should be glad if some of your readers would try the method I advocated and give the results they obtain. Of course the experiments must be made scientifically and with method to be of any value at all.

Max Madder.

* See "The British Journal Photographic Almanac and Photographers' Daily Companion" for 1893, p. 700.

The Editorial Table.

"American Annual of Photography and Photographic Times Almanac" for 1894. Edited by W. I. Lincoln Adams, New York; The Scovill & Adams Co.

Volume VIII. of "The American Annual of Photography and Photographic Times Almanac" makes its appearance promptly on the date announced—December 1st—"brighter than ever," as the advertisement characterizes it. The date of publication is made as late as possible, so as to insure the appearance of the latest information.

We have only space to briefly call the attention of our readers to the most obvious features of this volume. It contains over 400 pages of reading matter, including 124 contributed articles by well-known photographic investigators, professional and amateur photographers. It is embellished with 25 full-page pictures, besides innumerable cuts and diagrams, which illustrate the text throughout the book.

The coloritype, by William Kurtz, illustrates the greatest perfection which this process has been brought to at present. It is from an actual photograph of a stuffed bird, and, though only three printings were employed, the finished product contains between 20 and 30 different distinctive tints. The effect is very beautiful and true to nature. Two aristotypes are included with the other illustrations, one a gelatine, the other a collodion print. Then there are three photo-gelatine prints made by the New York Photogravure Company, the F. Gutekunst Company, and the Albertype Company, respectively, marking the greatest advance made in this important department of photographic illustration. The other pictures are "half-tones" and "process" blocks, by the various representative photo-engraving establishments of this country.

Although the volume is an improvement even on its own predecessors, which, judging from the high words of praise which they have received, is achievement enough.

Though the book continues to be enlarged and improved from year to year, the price remains the same, viz., 50 cents in paper covers; $1.00 cloth binding. It is for sale by all dealers in photographic goods in this country and abroad.

Our Prize Column.

COMPETITION NO. 2. GENERAL LANDSCAPE.

For the best landscape picture with or without figures, any size, we offer the following:

First Prize: A Silver Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Second Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

Third Prize: A Bronze Medal and PHOTOGRAPHIC TIMES Certificate of Merit.

PHOTOGRAPHIC TIMES Certificates will also be awarded to three other competitors, to be decided by the judges, if the work be sufficiently meritorious.

RULES.

RULE 1.—All entries must be forwarded to Editor PHOTOGRAPHIC TIMES, 423 Broome Street, New York, and marked "Competition."

RULE 2.—No indication of the competitor's identity to be placed on the competing pictures. A *nom de plume* (initials debarred) should be written on the back of the picture, and the coupon to be found upon one of the advertisement pages should be cut out and filled in with name and address, together with a few particulars regarding the photograph and any other details of interest, and inserted in a sealed envelope, upon the outside of which the *nom de plume* must be clearly repeated.

RULE 3.—The competition to be an open one. Any number of pictures may be sent, but each one must be accompanied by a coupon.

RULE 4.—All pictures for competition must be sent prepaid.

RULE 5.—The whole of the work entered must be the work of the competitor; that is to say, the exposure, development, printing, toning, mounting and finishing.

RULE 6.—The prints must be mounted. Framing optional.

NOTES.

All the rules given must be strictly adhered to or the competitor will be disqualified.

Absolute discretion will be placed in the hands of the judges, but we reserve the right to adjudicate on any question outside the actual judging.

Awards will be withheld if the judges decide that the work is not sufficiently meritorious. The possession of a PHOTOGRAPHIC TIMES Medal will, therefore, be a guarantee of a high order of merit.

The editors reserve the right of publishing reproductions of any of the photographs submitted.

No competitor shall receive more than one prize.

Pictures may be of any size or shape.

Any photographic process may be employed.

Pictures entered for competition will not be returnable.

The last day for receiving entries will be March 31st. The awards will be announced as soon after as possible.

MONEY SAVED, MONEY EARNED.

MRS CLIMBER.—"My dear, Mrs. Highupp has had her portrait painted by a celebrated artist, and I haven't had a thing but common, ordinary every-day photographs to show."

HUSBAND (a wise man).—"Huh! The idea of advertising to the whole world that her complexion is so bad that it won't stand the camera."—*New York Weekly.*

Queries and Answers.

175 ACKER.—The stains of metol will not yield to ox acid or hydrochloric acid. What else can you sugg to remove them?

175 *Answer.*—Eau de javelle, hydrochlorite of z (Flandrau's hypo eliminator), or permanganate potassium, perhaps.

176 M. P.—Saccharate of calcium has been proposed an addition to the eikonogen developer. What is function of that substance?

176 *Answer.*—It has a slight alkaline reaction, and therefore, a feeble accelerator, somewhat like lithi carbonate.

177 TUTTI FRUTTI.—Can you oblige me with a form how to sensitize kallitype paper, and how to develop

177 *Answer.*—

SENSITIZING SOLUTION.

Water	100 c.cm.
Ferric oxalate, neutral	10 grammes
Nitrate of silver	3 grammes

DEVELOPER.

Water	100 c.cm.
Rochelle salts	10 grammes
Borax	7 grammes

Restrain with a 5 per cent. solution of potassi bichromate. The bichromate should be handled w much caution. A trace too much of it may make print, from a finely detailed negative, harsh and chal

178 G. H.—1. I have some plain collodion, how ca sensitize it to make collodion dry-plates for tra parencies?

2. Can a gelatino-chloride emulsion for a printi out plate be made in gas light or must it be made ruby light?

178 *Answer.*—1. Add to 8 ounces of collodion 40 gra of bromide of cadmium and 40 grains of bromide ammonium, or 76 grains of bromide of zinc previou dissolved in as little alcohol as possible.

Sensitize by adding to each ounce of collodion grains of nitrate of silver, dissolved in 1 drachm boiling alcohol with a few drops of water. Add silver gradually to the collodion, small portions a time, and shake up well.

This collodion emulsion does well for lant slides.

2. Printing-out emulsion can be safely made by g light.

179 WORCESTER.—The only thing I ever failed to find your almanac is a formula for making blue paper.

Knowing that you are always ready to help out amateur, I take the liberty to write for the formula.

179 *Answer.*—For sensitizing the paper we prepare t solutions:

A.

Citrate of iron and ammonia	1⅞ ounces
Water	8 ounces

B.

Red prussiate of potash	1¼ ounces
Water	8 ounces

Filter and keep separately in the dark-room. I fore use, equal volumes of these are mixed togeth and poured into a flat dish or tray. After all foam air bubbles have disappeared, the paper is float upon this solution for three minutes, observing t same precaution required in silvering albumen pap Then hang up to dry. Print deeply and wash in pu water.



Copper Half-Tone from Photograph.

MOTHER'S JOY.

Weeks Engraving Co.
702 Chestnut St., Phila

ORTHOCHROMATIC PLATES.

IT is an astonishing fact that there remain at the present day many persons who disbeli the possibilities of obtaining, by orthochromatic means, more perfect images of colo objects than those obtained with the ordinary dry plate. Seeing is believing, howe and we have pleasure in reproducing two half-tone cuts made from photographs take the first with a Carbutt Special 25 Plain Emulsion Plate, and the second on a Carbutt Ort chromatic Plate (Sensitometer Number also 25) with a No. 1 Color Screen.

The original colored illustration from which these photographs were made will be fo in another part of this magazine, so that a comparison of the two effects can easily be ma

We need hardly point out the difference that exists between the two photographs, too striking. In the one taken by mean the Orthochromatic Plate we have the co values in the same relation as apparent the eye. That is to say, the yellow let appear light on the dark blue ground; w the ordinary plate the opposite is the res due to the non-actinicity of the yellow co

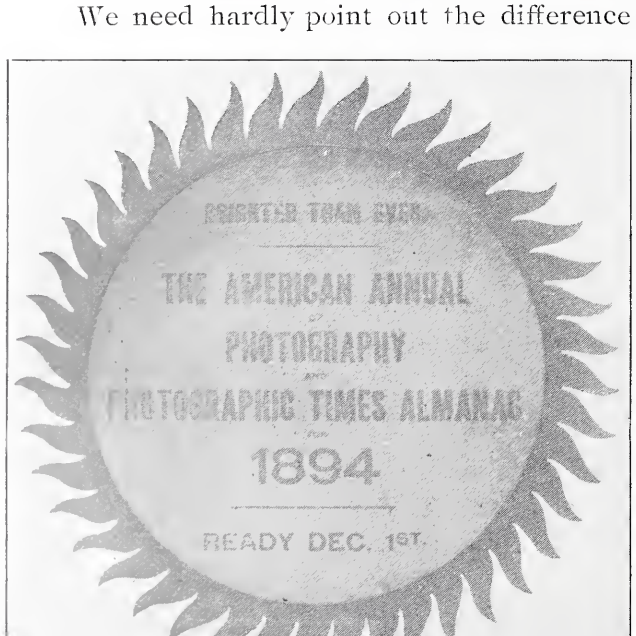


FIG. 1.—TAKEN WITH A CARBUTT 25 ORDINARY.

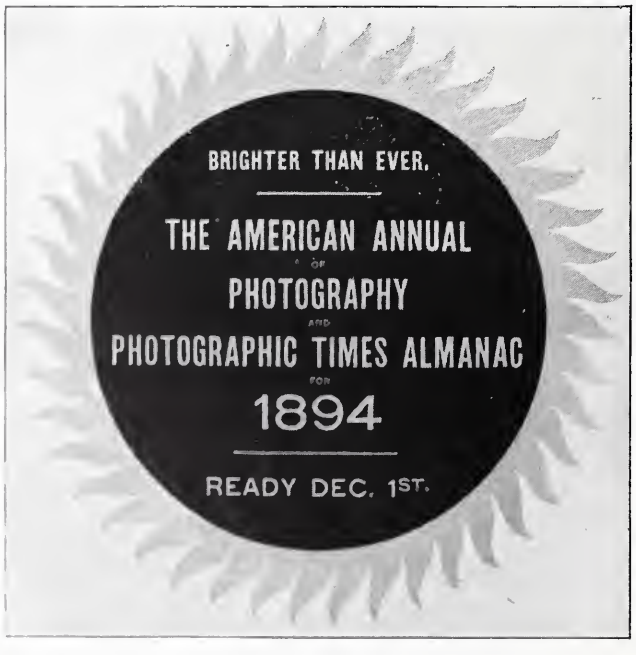


FIG. 2.—TAKEN WITH A CARBUTT ORTHOCHROMATIC 25.

This example of the value of Ort chromatized Plates shows us their imme superiority over the ordinary ones, for co ing paintings, colored objects, etc.

In ordinary landscape and portrait w the difference is also very apparent when two results are compared.

In portraiture it is not only striking in correct portrayal of the habiliments of sitter, but also in the features themsel The unnatural effect produced by the fa representation of skin defects, perhaps visible, are avoided, and the work of retoucher is reduced to a minimum.

In landscape photography, their va cannot be over estimated; not only do we more correct representation of color valu but we obtain better aerial perspective, m distinct detail, and, lastly, finer cloud effe Cloud studies, which lend so much charm the picture, are, as a rule, entirely lost w the ordinary plate, unless a very rapid posure can be made, which is seldom case. The reason of this is easily explain the blue of the heavens has an actinic eff upon the plate equal to the white clo scattered about in it, so that in the fi result we get a blank white sky which of entirely destroys the beauty of the landsc as we photographed it.

Orthochromatic Plates are becoming m popular every day, and there is no doubt t they would become far more so if photog phers would only take the trouble to m proper comparisons.

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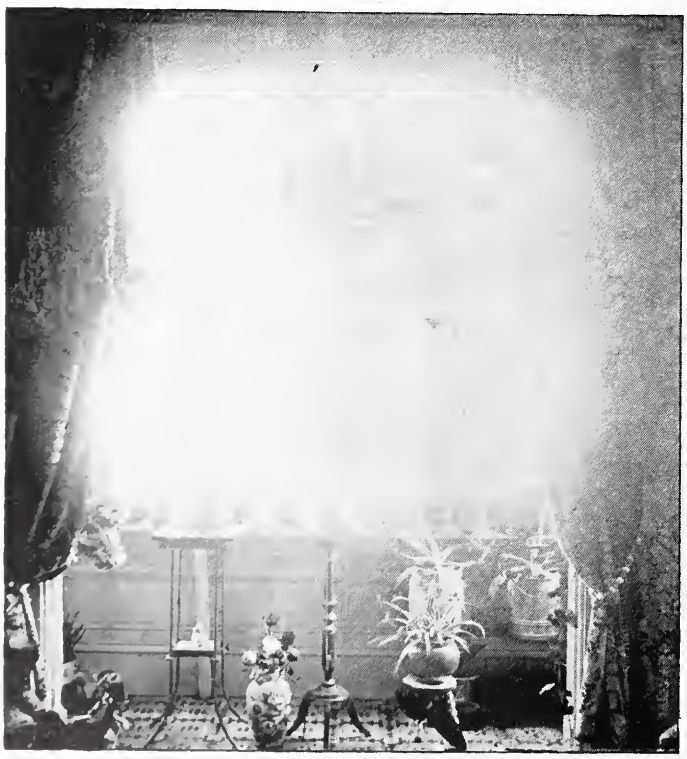
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W. P. BUCHANAN,

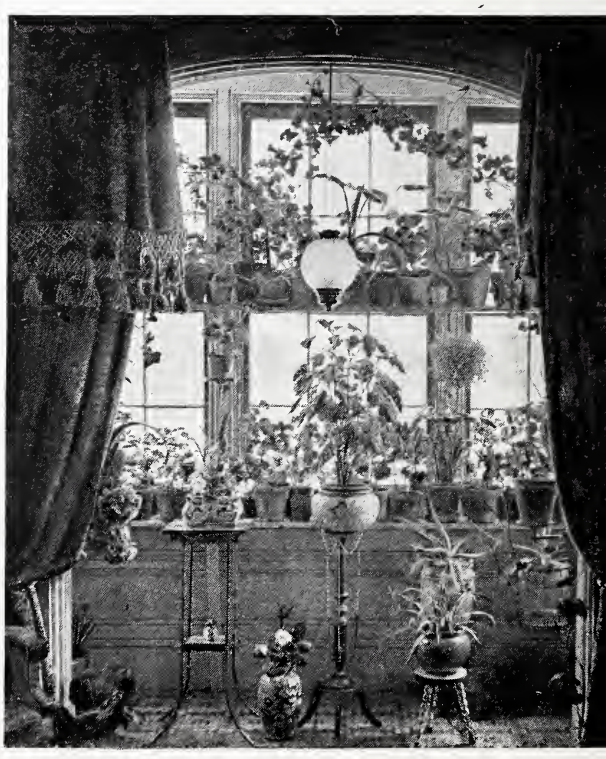
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Contains eight practical and carefully selected toys, all well suited for the purpose.

PRICE, $1 00. BY MAIL, 25c. EXTRA.

One dollar invested in one of these outfits will save you many a spoiled plate and will *bring you business.*

SCRANTON PHOTO SUPPLY CO.

Everything Photographic, Wholesale and Retail.

138 Wyoming Ave., Scranton, Pa.

Send 6 cents in stamps for 4 x 5 Photo on Gilt Edge Mount of "EXPOSITION FLYER" running at speed of 40 miles per hour.

Developing and Printing for Amateurs

Negatives can be safely sent by mail or express.

WRITE FOR INSTRUCTIONS.

The Rapid Photo Printing Co.

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A 4 oz. trial bottle of our RAPID AMIDOL DEVELOPER for 10 cents in stamps.

Just One.—TREETOP.—"Do you take fotygrafts here?"

ARTIST.—"Yes, sir; twelve dollars for a dozen."

TREETOP.—"I couldn't bring the whole family; how much'll you tax for just me?"—*Detroit News.*

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MODERN TRAVELER (proudly).—"Photographed it."—*Chicago Tribune.*

Customer (at bookstore).—"Have you 'Modern Views of Heaven'?"

NEW CLERK.—"I don't know, sir; have you inquired at the photograph counter?"—*Chicago Tribune.*

"THE KNACK."

NOT THE CAMERA,

BUT THE BOOK.

Written expressly to help the beginner in perplexity.

Price, reduced to 25 cents.

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Artistic Landscapes

From Nature. Representing The Four Seasons.

THESE PLATES were made from photographs taken direct from nature. They have been most beautifully reproduced by the highest grade (copper-plate) process of the New York Photo-gravure Company. The plates measure 6 x 8 inches, but are printed on extra heavy plate paper 11 x 14 inches in size. Each picture is printed in a tint especially appropriate for the season which it represents, and the entire set of photo-gravures are in every way **WORTHY OF FRAMING.**

The negatives were photographed from nature by Mr. W. I. LINCOLN ADAMS, Editor of *The Photographic Times*, and they have been ENTHUSIASTICALLY PRAISED WHEREVER SHOWN.

What GEORGE INNESS, America's greatest landscape painter, says of these photo-gravures:

"They are very charming, and should prove extremely useful in the development of the landscape art of our country."

They are sold singly, or in sets.

Price, per copy,	**$0 50**
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THE MONTCLAIR PHOTO-GRAVURE PURLISHING CO.
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A Charming Book Given Away.

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BY MISS ADELAIDE SKEEL.

"STORIES CAUGHT BY THE CAMERA STRAIGHT FROM LIF

Will be sent, postpaid, **FREE,** to any one send Five Dollars with a new subscription to THE PHO GRAPHIC TIMES.

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ROGERS' STATUETTE GROUPS,

FOR WEDDINGS AND HO DAY GIFTS.

Prices, from $5 to $2

Send for Illustrated Catalogue.

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BET. WHITE AND WALKER STREETS.
(By permission of JOHN ROGERS.)

Irate Female,—"See here! Do you mean to tell that I have got such an ugly looking nose as that?"

PHOTOGRAPHER.—"But my apparatus cannot lie, m am."

IRATE FEMALE.—"Then for goodness' sake go and one that can."

"I think photography is very interesting," she saic a young man who is in that line.

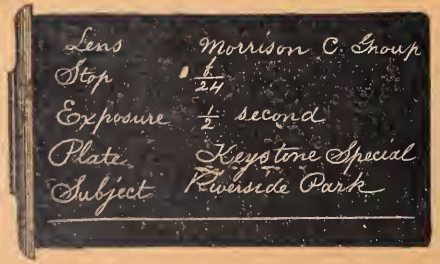
"Yes, it is."

"I should like to have you make a picture of me.'

"With pleasure."

"How would you prefer to take me?"

He looked at her with a face that showed deep thoug and then replied slowly, but in a firm voice: "For be or for worse, by all means."—*Washington Post.*





REGISTERING SLIDES.

(PATENTED.)

In the pleasure or excitement attendant upon picture-taking, hol slides have been so changed about that the note-book afforded no clue to t identity. All photographers, whether professional or amateur, who hav time past puzzled their brains in the endeavor to solve such vexatious qu tions as these—

"Have I or have I not exposed that plate?"
"If exposed, was the plate used for that prized picture?"
"Shall I incur the risk of making a double exposure?"

henceforth will have themselves only to find fault with if they do not proc and use in their dry-plate holders the patent registering slides, or as they h been called "Record Slides." These can be written upon with slate or l pencil *ad libitum*, and the writing erased without injury to them.

Registering Slides *will be supplied with new American Optical Co.'s Plate Cameras and Amateur Outfits up to* 10x12 *size without addition to price*

AMIDOL IS STILL ON TOP!

WE HAVE IT!

ILO COLLODION PAPER.

THE SCOVILL & ADAMS CO.

THE AMATEUR.

Who gets the photographic craze
And for a cheap hand-camera pays,
Then takes a month to learn its ways?
The amateur.

Who makes exposures, then gets mad
And swears that all the plates are bad,
Then vows he'll quit the silly fad?
The amateur.

Who buys a perfect "Henry Clay"
And finds his troubles melt away,
Then makes fine pictures every day?
The amateur.

THE RAZOUX
Excelsior Photographic Trimming Board.

(Patent Applied for.)

Price, $3.00.

This cutter is designed to supply a long-felt demand for a cheap, serviceable article.

The knives are made of the best grade of steel, and are guaranteed for wear.

You can trim prints quicker than with any other cutter made, and your print will always be perfectly square, and the edges clean and smooth.

No. 1.—Trims sizes up to 6 inches.....Price, $3 00
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For Sale by THE SCOVILL & ADAMS CO.

PARA-AMIDOPHENOL HYDROCHLORATE,

The Developing Agent of the Future.

With para-amidophenol there is no staining of the film, as with eikonogen and hydrochinon when development is prolonged, absolute transparency and opacity is secured, and the time of exposure is reduced about 30 per cent. without injury to half-tones and middle tints.

Formula for Developer.

Para-amidophenol (pure).	100 grains.
Sodium sulphite (crystals)..	3 ounces
Potassium carbonate...	1½ ounces
Water	32 ounces

For Use.—Take 1 ounce of the above solution and from 2 to 4 ounces of water, according to the length of exposure.

The stronger the solution the greater the intensity of the resulting negative; the more diluted the solution the greater softness and more detail.

PURE PARA-AMIDOPHENOL HYDROCHLORATE,

In ½-oz. bottles, *Reduced to* 65 cents per bottle.
In solution, ready for use, 50 " "

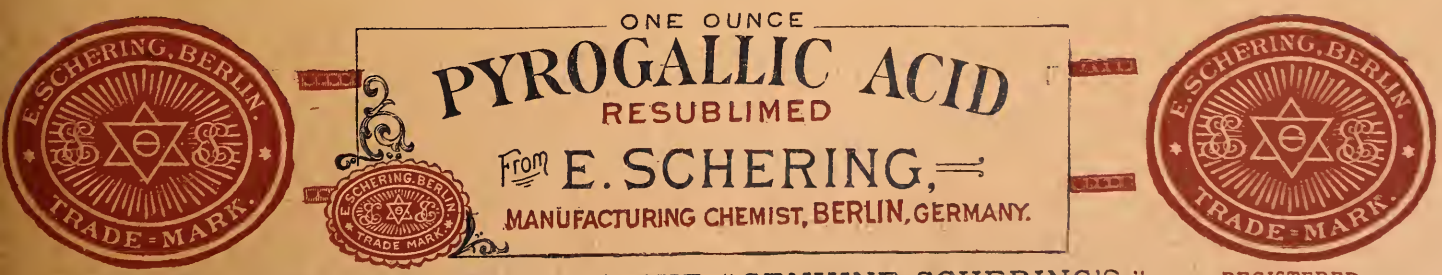
The "Para" Developor in Solution ready for use, with full directions. 8 ounce bottles.

Price, - - - 50 cents.

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CHEMISCHE FABRIK AUF ACTIEN

(Vorm. E. Schering) BERLIN.



REGISTERED. **SEE THAT YOU GET THE "GENUINE SCHERING'S."** REGISTERED.

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423 Broome Street, NEW YORK.

Compliments of the Season

AND A SHARE OF YOUR PATRONAGE SOLICITED

Photo Supplies General.

GEO. J. WOLF & CO.

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A GREAT CONVENIENCE IN DEVELOPING DRY PLATES.



Pelletone

PYROGALLIC

ACID TABLETS,

Put up in bottles, each containing 100 2-grain (*exactly* 2 grains) tablets of

SCHERING'S

Unrivaled Pyrogallic Acid

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Price per Bottle, reduced to 40 Cents.

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THE SCOVILL & ADAMS CO

SOLIO.

HAVE ONLY PRAISE FOR SOLIO.

Good After 8 Months.

CLEVELAND, OHIO, Oct. 2d, 1893.

EASTMAN KODAK CO,

Dear Sirs:—I send you herewith two prints from Solio paper which has been in our hands over eight months and toned in a combined toning and fixing bath made some time before we got the paper. The purity and beauty of these prints speak for themselves.

Yours truly,

F. J. RYDER.

"Fills the Bill."

CLEVELAND, OHIO, Oct. 5th, 1893.

EASTMAN KODAK CO.,
Rochester, N. Y.

* * * * * * *

I have always been somewhat of a "crank" on the permanency of silver prints and fully believe that Solio fills the bill.

Yours truly,

E. DECKER.

EASTMAN KODAK CO.,

ROCHESTER, N. Y.

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(VORM. E. SCHERING) BERLIN.



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PYROGALLIC ACID

RESUBLIMED

From E. SCHERING,

MANUFACTURING CHEMIST, BERLIN, GERMANY.



REGISTERED. SEE THAT YOU GET THE "GENUINE SCHERING'S." REGISTE

THE SCOVILL & ADAMS CO.,

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Spoiled in the Mounting!

YOUR PHOTOGRAPHS

are

SLOUCHY, SMOUCHY,
COCKLY, SPOTTY,

Because you have used an inferior or make-shift mountant.

HIGGINS' PHOTO MOUNTER



is an always-ready adhesive which will not spill, spatter, nor drop off the brush. Never hardens, separates or becomes gritty. Does not cockle, strike through nor change the tone. Never moulds, sours or deteriorates in any way. A unique adhesive, scientifically made to meet the special requirements of photograph mounting. Fully guaranteed. FOR SALE BY ALL DEALERS AND JOBBERS.

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FOR SALE BY THE SCOVILL & ADAMS COMPANY.

The "Boston Mat" was designed by WM. G. REED, of the Boston Camera Club, for the purpose of simplifying the task of mounting slides, having the openings all *harmonious*, if not uniform, and to enable the maker to so prepare a set that all will "register" when projected.

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Dear Sir:—Your mat is the "greatest labor-saving invention of the age." Please send me two hundred more.

MR. GARRISON REED.
Dear Sir:—I have just returned from Japan with several hundred unmounted slides, which I wish to mat with the "Boston Mat" I have told many people of the excellence of your mat, and shall continue to do so, for to me it seems the only sensible one.

MR. WM. G. REED.
Dear Sir:—I have found your ingenious lantern-slide mat exceedingly convenient and useful.

The originals of above letters may be seen in our New York Office.

The Boston Mat

(PRICE FIFTY CENTS PER HUNDRED),

Is for sale by the trade generally. If your local dealer has none, send order to

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SOLE AGENTS,
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THIS DOES NOT INTEREST ANY EXCEPT MONEY SAVERS!!

"Photographic Times," one year, - $5.00
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YOU CAN HAVE BOTH FOR $5.00 BY ORDERING THEM AT ONCE OF

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Sample copy, 10 cts., contains club rates for "Harper's," "Century," "Scribner's," "Cosmopolitan," etc., etc.

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After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
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IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

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Sample Sheets, by mail, 10 cents each. 423 Broome St., New York.



SUTER LENSES

Are the BEST Lenses made.

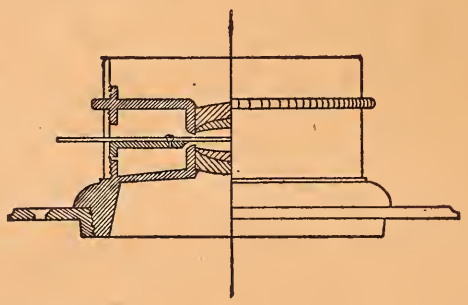
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SERIES IV. **Rapid Wide-Angle,** specially designed for landscape work and architecture, but can also be advantageously used for flash-light interiors and copying.

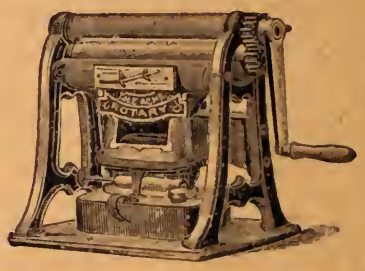
SERIES  V.

Extreme Wide-Angle, for architecture and interiors, and for very high, broad objects taken from short distances.

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Acme Improved Rotary Burnisher.

8 inch	ROTARY, Alcohol, Oil or Gas,	$13.00
11 "	" " "	20.00
15 "	" "	25.00

NOTE.

Quick Heater.
Saves seventy-five per cent. of gas, oil or alcohol.
No sweat, no smoke, no smell.
Acme Horizontal Thermometer attached.
No blistered prints, uniform results.
Simplest Rotary Burnisher ever made.
One-hand wheel adjustment.
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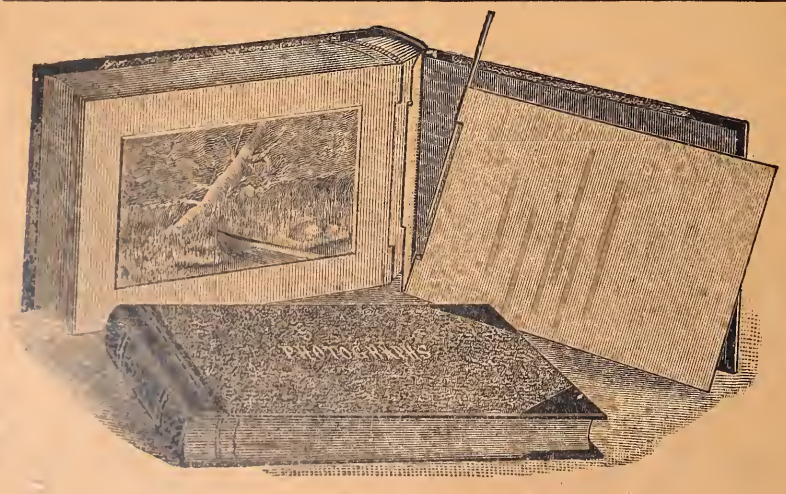
No adjustment bar over top of roll, allowing perfect manipulation of picture. Guaranteed in every particular.

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No. 1	6 x 7	cards		$2 25
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Concentric, Universal Symmetrical, Working in F 5 6.

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Optimus Lenses,
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All brands of Dry Plates, Pure Chemicals and Supplies of all kinds,
All the latest Hand and Tripod Cameras.

Descriptive Catalogues of any of the above sent on receipt of 5 cent stamp for postage.

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THE SCOVILL
PEERLESS DARK-ROOM LANTERN.

(IMPROVED.)



"This is without question the best Lantern for the Photographer's use yet introduced."

Such is the reports of experts who have had them in use for months.

Why they were agreed in their conclusions:

BECAUSE the ventilation is perfect, and dangerofoverheating overcome.

BECAUSE it is constructed so that white light does not escape.

BECAUSE it gives ample light for the dark-room.

BECAUSE the abundant light does not fog, but does show any spot or blemish in the plate.

BECAUSE so much of the light may be thrown into the developing dish and be shaded from the eyes.

BECAUSE it may be used either with coal oil or candle.

BECAUSE the flame may be so quickly controlled by unlatching the door or uncatching the bottom of the Lantern.

PRICE, $2.50.

WE HAVE JUST COMPLETED

THREE NEW SERIES
ZEISS-
ANASTIGMAT
LENSES.

SERIES I.—Highest Grade Portrait Lens.

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THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

THE GENUINE ARE IN SILVER WRAPPERS.

Price of Scovill Magnesium Compound.

In ounce bottles, with fuses.	$0 50
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No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
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Please remember that in speed and every desirable optic quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses

which are made in SEVEN different styles.

BENJ. FRENCH & CO.,

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Revised Price-List sent on application.

Correspondence solicited



Mr. J. D. Record,

Formerly with the HARVARD DRY PLATE C which has recently discontinued business, is n connected with the

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Mr. Record had the management of the Harva Dry Plate factory in the manufacturing of th Plates and the compounding of their Emulsions.

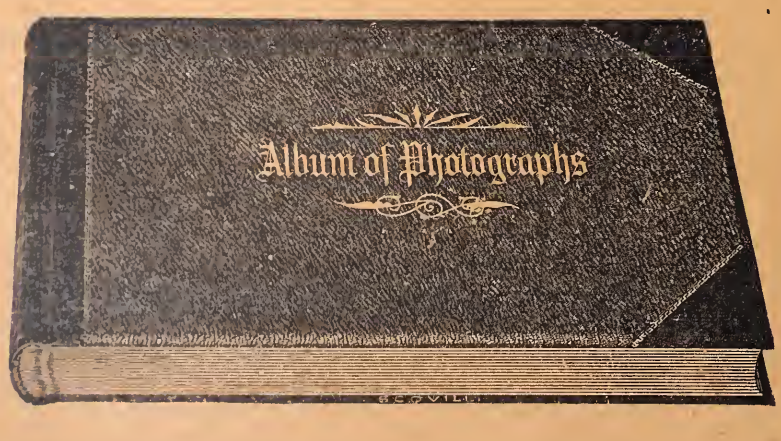
The RECORD DRY PLATE CO. is about to put the market a plate called the **Record Dry Plat**

This plate will be made at East Milton, Mas which is located a few miles from Boston, a affords every facility for manufacturing Dry Plat

For sale by all Photographic Stock Dealers. trial of these Plates is respectfully solicited.

PRICE LIST.

3¼ x 4¼	$0 45	10 x 12	$3 80
4 x 5	65	11 x 14	5 00
4¼ x 5½	75	14 x 17	9 00
4¼ x 6½	90	16 x 20	12 50
5 x 7	1 10	17 x 20	13 00
5 x 8	1 25	18 x 22	15 50
6½ x 8½	1 65	20 x 24	18 50
8 x 10	2 40		



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Size of Cards.... For Photographs (size)	6x7 4x5	7x10 5x 8	10x12 6¼x8¼	11x12 8x10	14 11
Plain	$1.25	$1.50	$2.25	$2.50	$5
With Gilt Lines	1.25				

Each album has 48 pages, 24 leaves. In th the finest card-board only is used, chemica free from anything that could injure a print.

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OF

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WE DEAL IN ALL KINDS OF **CAMERAS** AND **APPARATUS**, AND CARRY A LARGE STOCK OF THE **MATERIALS** AND **CHEMICALS** REQUIRED IN THE ART OF PHOTOGRAPHY.

WE MAKE A SPECIALTY OF

Developing, Printing and Mounting

Look out for imitations of

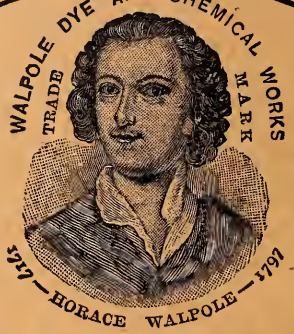
WATERBURY CARDBOARD.



Look out for the genuine, too, and see that you get it.

It is the Best and Cheapest.

WALPOLE DYE & CHEMICAL CO.



HYPOSULPHITE SODA.

Every Lot is Tested Chemically and Photographically Before Shipping.

WALPOLE, MASS.

Remember

THAT

"Three Crown"

Albumen Pape

Is absolutely the BEST.

WHY?

Because none but the Best of the Rives Paper is selecte

for Albumenizing the THREE CROWN BRAN

It is therefore free from the imperfections often to be foun in other brands, which arise from defects in the plain pape and hence cannot be avoided.

THE

Standard Dry Plates



Are acknowledged by many Leading Photographers to be the

STANDARD OF AMERICA,

And should be used for all branches of work where **Uniformity, Rapidity** and **Brilliancy** are required.

"Am pleased to say that your plates are very fine. They are swift, clean, and in fact possess all the qualities of any first-class plate.

For white drapery must say they are absolutely perfect.

Hoping that you will meet with the success that your plates fully deserve, I remain,

Respectfully yours,

HENRY E. BERGER,

Operator for J. H. Ryder, Cleveland, O."

Why not try them?

MANUFACTURED BY

The Standard Dry Plate Co.

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SOLD BY ALL DEALERS.

AT LAST

WE HAVE FOUND A PERFECTLY NEUTRAL AND CHEMICALLY PURE BRAND OF

Sulphite of Sodium

Which is so necessary in the preparing of developers, especially with

Amidol, Para-amido-phenol, Eikonogen, Hydrochinon, Pyrogallol, and the other organic reducing agents.

Dr. M. Andresen, of Berlin, renowned for his discoveries of the modern developers, understood well the necessity of a reliable preservative of these substances when in solution, and he made

A Pure Sulphite of Sodium in Crystals.

THE SCOVILL & ADAMS CO. are Sole Agents for this much desired substance in the United States.

Price, in	¼ lb. cans,	20 cents.
"	½ " "	25 "
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Ask your dealer for Andresen's Sulphite.

A. M. Collins
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would call attention to Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or, perhaps, any other country.

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PHOTOGRAVURE.
PHOTOGELATINE.
HALF-TONE. . .

ERNEST EDWARDS, President. Inventor of the Heliotype Process. Manager, Heliotype Printing Co., Boston, from 1872 to 1886.

W. R. STANBERY, Secretary.

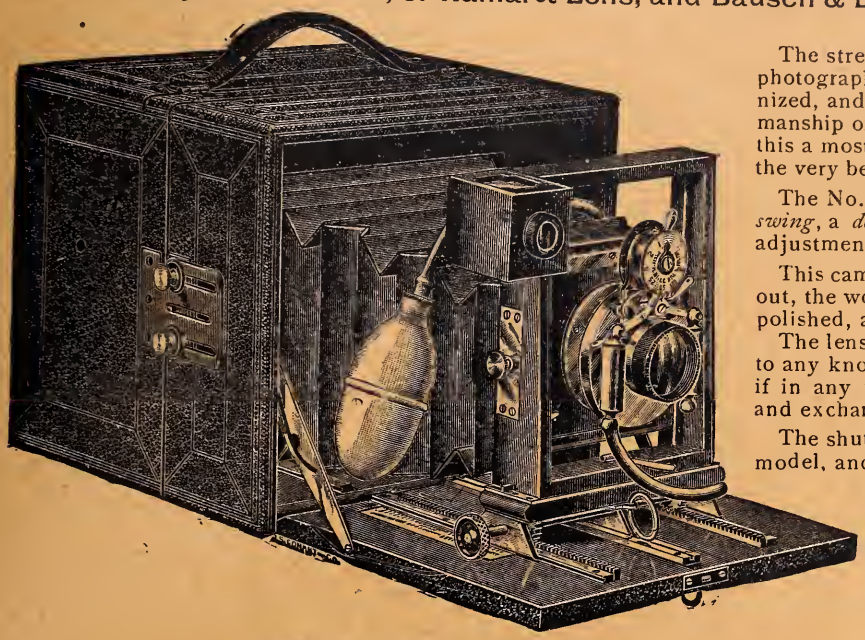
"SUN AND SHADE," an Artistic Periodical.

Art Director, A. V. S. Anthony, for many years Art Director for Ticknor & Fields, and Fields, Osgood & Co.

"Plates of the highest merit both in design and execution."—The Independent, New York.
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"Photogravures of the highest quality."—The Herald, New York.
"Possessing the quality of drawing in India Ink or Sepia."—The Sun, New York.

THE 5x7 FOLDING HAWK-EYE, No. 2.

With Taylor & Hobson, or Kamaret Lens, and Bausch & Lomb Improved Shutter.



THE 5X7 FOLDING HAWK-EYE. NO. 2.

The strength of the above combination from a photographic standpoint will be readily recognized, and the beautiful finish and fine workmanship of camera, lens and shutter, also make this a most desirable outfit for those who want the very best.

The No. 2 model has, in addition to the *double swing*, a *double sliding front*, thus giving every adjustment which will ever be required.

This camera is of extra fine hand finish throughout, the wood work being ebonized and French polished, and the leather is genuine morocco.

The lenses are guaranteed to give results equal to any known make of similar dimensions, and if in any way unsatisfactory, may be returned and exchanged.

The shutter is the latest and most popular model, and may be set for automatically timed exposures of from 1-100 of a second to 3 seconds with great accuracy, as well as for longer exposures in the usual manner. The lightness of this shutter, and freedom from noise and jar in quick exposure, also commend it.

Price, as above, with 3 F.W. Holders, for plates or cut films, $60
" Blair's Improved Roll Holder, with Automatic Tally, 9

Price, Blair's Film, per roll, 25 exposures, - - - - $3
" " " " 50 " - - - - 6

THE BLAIR CAMERA CO., Manufacturers,

BOSTON. NEW YORK. CHICAGO.

E. & H. T. ANTHONY & Co., Trade Agents, New York.

BP SPECIALTIES.

BP **ARISTOTYPE PAPER** than which there is none better. It gives all the detail of the negative, is easily printed and toned, yields **pure whites,** and does not curl or scratch.

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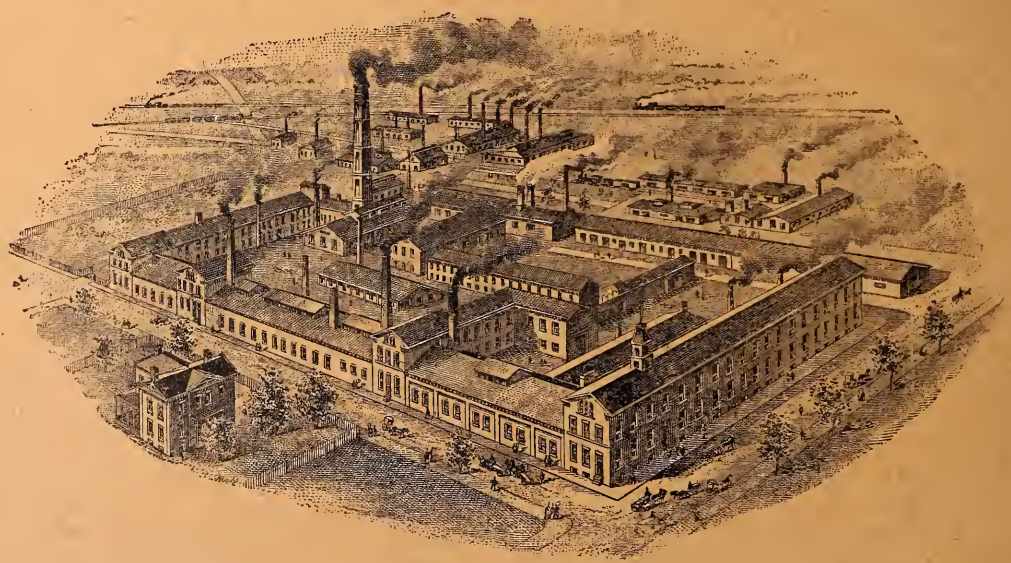
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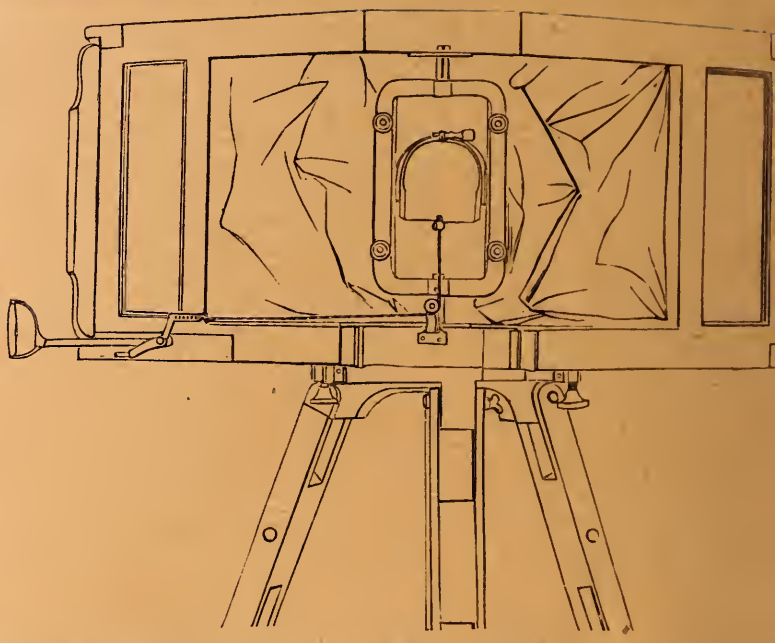
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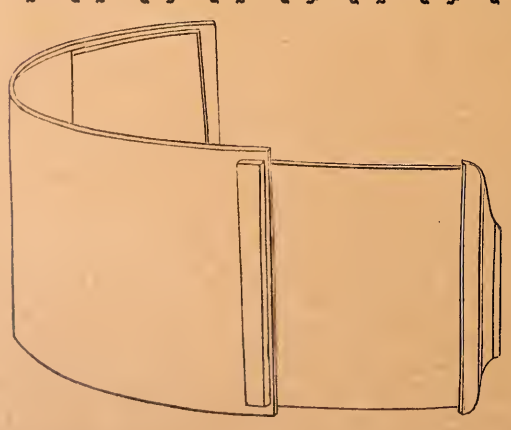
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WE take pleasure in introducing to the photographic fraternity ou new Panoramic Camera, which is made in various dimensions u to the size capable of making photographs 18 x 48 inches.

A new design of constructing these cameras in hemispherical form ha been invented; a new movement of crossing the lens over the segment of the circle, and an automatic release for the shutter has also been cor structed. Carbutt's No. 27 films, or his orthochromatic films of the sam sensitiveness, are used by means of an ingeniously constructed flexible dar slide, which permits of the necessary curve to conform with the back of th camera. The cameras are solidly and serviceably made, elegant in finish and in every way maintain the world-wide reputation of the America Optical Company. The cuts shown herewith give an idea of the externa appearance of the camera, and the dark slide for holding the film.

The prices of these cameras, including in each case a substantial woode box or trunk for holding the instrument, a suitable tripod, a panorami printing frame, two holders, two developing baths, and the celebrated Swi lens, are given below.



Price of The Scovill Panoramic Outfit for making photographs 10 x 30 inches, complete as above, ... $2

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Has only been in existence little less than a year, yet in this brief time it has received many flatterin testimonials from all over this broad land. From the Atlantic to the Pacific, from the Great Lakes t the Gulf, PERFECTO is known and used. This, without the aid of demonstrators, would prove the fac that merit alone can win. As we have made known ere this that we do not favor publishing test monials as we prefer the paper to speak for itself, but it comes to our ears that demonstrators for othe papers make capital out of it by saying that the reason we do not publish testimonials is because w haven't them, so we consider it but doing justice to ourselves to make them swallow their words. Th following are extracts from letters we are daily receiving, and are **wholly unsolicited**:

FRANKLIN, PA., Sept. 29, 1893.

The Loucks Aristotype Co., Jamestown, N. Y.

DEAR SIRS.—I received sample of your paper and put it in with other paper (———) that I have been using for some time, and gave it the same treatment—combined bath—and must say your paper far surpassed the other in almost every way The whites were especially clear and the blacks of good depth and clean. Must say we like your paper *very much*, and, if I can make any converts for you, I will cheerfully do so. Very respectfully,

IRA BLACK.

Enclosed find $6.39, in payment for three gross cabinet Perfecto paper—one gross you sent me, and two gross please send at once I like your paper very much.

J. C. FIELD, Tampa, Fla.

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A. E. RAYMOND, Vermillion, N. Y.

Your sample Perfecto paper to hand, and I will say that I am just delighted with results obtained on first trial, and so send you an order at once.

B. F. VANCE, Bluff City, Tenn.

I have tried the gross of paper in three separate small batches of four dozen each. On the whole, I am positively delighted with it as the very best substitute for albumen I have yet met.

C. MURNA, Holstein, Ia.

Received sample Perfecto paper sent me, and gave it a trial. Will say that it beats anything I have ever tried, and, if it is as permanent as albumen, I can see nothing more to be desired in a printing-out paper.

C. R. OSBORN, Coldwater, Mich.

I like your Perfecto paper. It is very fine. It work like albumen.

J. V. DABBS, Fort Scott, Kans.

I have tried your new Perfecto paper in my business- a couple samples sent me by Messrs. Weister-Meek Co Portland, Ore.—and am delighted with it for colorin upon. It is susceptible to a softness of tone and retain the brilliancy of color better than anything I have yet tried and I have been in the photo porcelain business for ove five years.

WM. A. TREFFENBERG, Portland, Ore.

I have tried your paper, and I must say the results ar beautiful. I also find the paper easily manipulated, and think that hereafter I will use Perfecto exclusively. have used several—or, rather, have tried several differen makes—but have found none so easily manipulated, and most assuredly, none that gives such satisfactory resul as your Perfecto paper.

L. D. SIMMONS, Natchez, Miss.

I have tried your Perfecto paper, and it is out of sigh My father (Booneville, Mo.) also tried it, and will in th future use Perfecto. Enclosed find P. O. order for gross cabinet Perfecto paper. Please send by return mai

L. S. EDWARDS, Rocheport, Mo.

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If your dealer does not have PERFECTO paper, do not take his (good advice), as he ma call it, but tell him you wish to know for yourself what PERFECTO is. We will furnish samples fre to dealers, so there is no excuse for their not supplying you with a sample, at least.

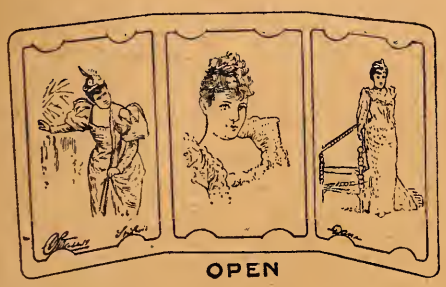
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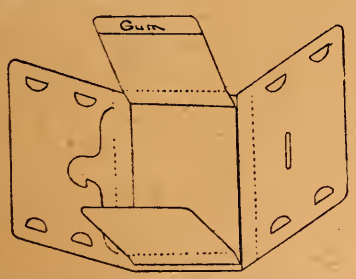
PATENTED JUNE 6, 1893.

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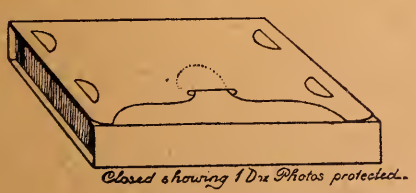


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Send for a nine panel photo screen for your Counter, 75 cents.

Extra Gummed Wrappers, $2.50 per thousand.

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Entirely overcome halation.
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We ask nothing more than this.

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THE 5 x 7 HENRY CLAY
Stereoscopic Camera
FOR TRIPOD AND HAND USE.



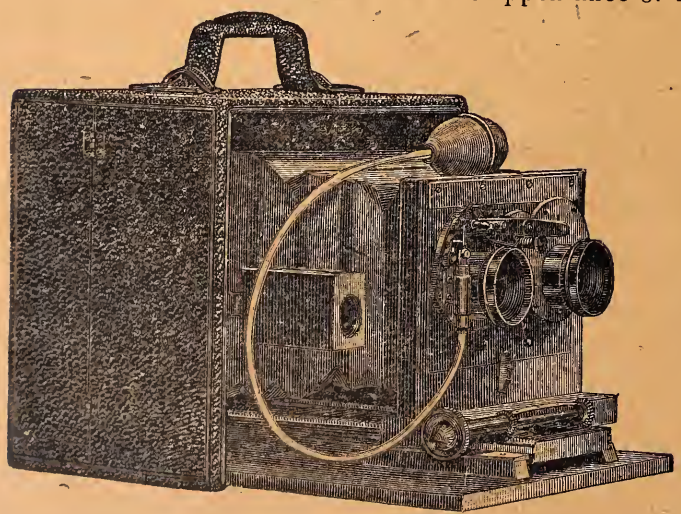
It is commonly known that of all pictures, those which are arranged to give the stereoscopic effect when viewed in a stereoscope, convey the true impression of perspective and solidity. It seems strange, indeed, that of the myriads of instantaneous pictures made, so few are taken with reference to their future use in connection with the stereoscope, *for it is only by that means that the idea of perspective and solidity can be conveyed.* We can only assign as the reason the present almost universal use of hand cameras, and that none of them have, up to this time, been arranged for stereoscopic pictures.

There is a much over-worked phrase—"the long felt want," but we think that just that, literally, will be met by the new hand camera which the American Optical Company have just finished.

The first illustration shows one of these cameras closed, and you will observe there is no external opening for finder, lens or anything to indicate that the leather-covered case contains the appliances which go to make up an instantaneous camera.

This camera measures eight inches high, nine inches long and five inches wide ; its weight is about five pounds. It has a screw plate underneath, so that it may be used with a tripod. It has a door in the back of the case, and through that opening the image thrown by the lenses may be seen on the ground-glass focusing screen.

The second illustration shows the appearance of the camera when open. The pair of Rapid Rectilinear Lenses is fitted with a triplex stereoscopic shutter with pneumatic release, made by the Prosch Manufacturing Company.



The camera is furnished with a focusing scale and a reversible finder. Either half of the stereo. negatives when cut in two are of a size suitable for making lantern slides from.

This camera may also be used to take a single picture of the size of the ground-glass focusing screen (5x7 inches), either vertical or horizontal. In the former case the reversible finder comes into use. The septum which divides the camera inside is arranged so that it may be easily taken out, the stereo. lenses are mounted on a removable front, and an extra front is furnished on which may be placed any lens of not over seven and a half inches equivalent focus.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release,** $75.00

This camera can also be made with vertical sliding and swing front. By means of the former the proportion of sky and foreground may be adjusted ; the latter permits the taking of subjects which may be either above or below the level of the camera and still preserve the lines vertical.

PRICE, **with a pair of Rapid Rectilinear Lenses and Prosch Stereoscopic Shutter with Pneumatic Release, and with vertical sliding and swing front,** . $80.00

A 5x7 Roll Holder for Transparent Films can be furnished with either of the above forms of this camera for $15.00 additional. This addition would make the case about two inches wider and one-quarter inch higher.

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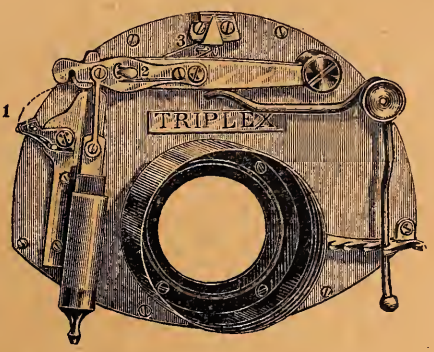
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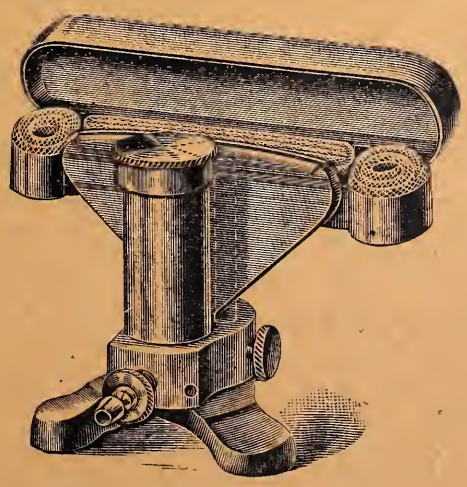
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Brick tones are not necessary. Easy and satisfactory.

A trial will be a small expenditure, and we know you will be pleased.

Send 25 Cents for Sample Dozen.



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To those desiring to try our paper, we will send sample packages for 25 cents with print, and will have them supplied with fresh paper afterward.

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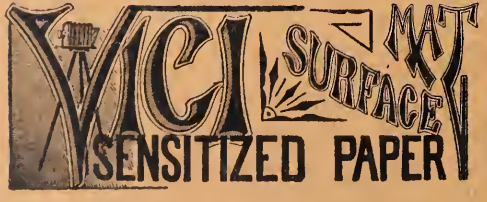
Than anything else of we could possibly expect. This was mainly on account of the attractive colors we are now getting our tissue out in, there being fifteen in all, and that the progressive photographer is continually looking out for new things. He finds it imperative to keep up with the times, or else go under. All our tissue is made to keep indefinitely, and full instructions are sent with each package. The cost is slightly above silver paper, but the effects cannot be equaled by any known process. This we know is saying much, but we offer to convince any who sends us references, by sending them a collection of carbon prints mounted for their inspection, with the understanding that they pay charges and return same within twenty-four hours. We will also make enough prints from their negatives to give a respectable show in their window or case, at a great reduction from our regular price, on first order. This is to introduce our work and tissue, we having many comments like the following:

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A STUDY IN LIGHTING.

By Friedrich Müller, Hofphotograph, München.


PHOTOGRAPHIC TIMES



THE PHOTOGRAPHIC TIMES.

VOL. XXIII. DECEMBER 29, 1893. No. 641.

A STUDY IN LIGHTING.

THE portrait we give here is from the studio of Freidrick Müller, Hofphotograph. in Munich. It is a capital study in lighting up the features to give relief and rotundity.

REPRODUCING NEGATIVES.

WE were much surprised a few days ago to hear a well-known photographer deplore the fact that it was next to impossible to reproduce negatives, and to make the reproduction at all equal to the original. Not many years ago it was our duty to duplicate negatives, and when the copy was made it was held up alongside the original, and, in order to pass, it required to be so exact that one could not be told from the other.

We did not employ any secret or special means, but it was a matter of necessity to exercise great care, with the end that we were in most cases able to produce negatives so like the original that it was a matter of extreme difficulty for any falling off to be detected. Indeed, where the original was weak or defective, the reproduction often surpassed it.

There are several methods of obtaining copies of negatives by means of an intermediate positive, but the simplest, in our opinion, is that by the carbon process, that is to say, by making a carbon positive transparency, and from this another negative.

In England a special transparency carbon tissue is sold, but we do not think it can be obtained in this country. However, ordinary carbon tissue can be employed with nearly as good a result.

It is in the making of the intermediate positive that the great mistake is usually made. The usual method is to make a nice brilliant picture perfect to look at, but practically useless for our purpose. What we require is a rather flat picture with all the detail and no strong contrast at all.

We have often shown positives made for this purpose and been advised to convey them to the ash box, and the counsellors have been particularly surprised when they have seen the actual resulting reproduction obtained from it.

We need hardly detail the method employed in the making of a carbon transparency. Any instruction book gives it, and columns of THE PHOTOGRAPHIC TIMES have been devoted to it. But we wish to lay particular stress upon the quality of the picture to be obtained to be of any use for the purpose. Defects in the original negative, that is, white spots, etc., can be spotted out, and black defects removed in the carbon picture by cutting or planing with a small slip of glass, using the sharp end as a plane.

From the positive there are two methods of making a negative, namely, by contact and in the copying camera. We prefer the latter method undoubtedly, as a much sharper and clearer result is obtained. A slow plate is preferable to a fast one and every precaution should be taken that there is no vibration during the exposure. If the exposure be perfectly correct, there is no reason why the negative thus obtained should not be equal to the original.

We have already stated how spots and other similar defects can be removed. In making the negative from the positive other faults in the original can be corrected. For instance, certain parts may be weaker than others. By shading parts of the picture during the exposure and thus increasing the amount of light effect upon other portions, we can often obtain a reproduced negative superior to the original.

It is not essential to employ a copying camera. The amateur can easily fit up a suitable arrangement for himself. By covering up the window with black paper, except a small space admitting the negative and a piece of ground glass behind it, every purpose is served. The plate is then put in

the camera and the exposure made in the ordinary manner.

Black vignettes can be made by moving a piece of stout cardboard, having a hole cut in it, between the camera and the positive.

MOUNTING AND FRAMING.

THERE is nothing perhaps that is so striking, when visiting a photographic exhibition, as the diversity of taste exhibited in the mounting and framing of the photographs. There is certainly more scope here, and consequently greater variety, than in the pictures themselves; but, alas, how seldom do we see really good taste and artistic feeling shown! At a recent meeting of the London Camera Club, Mr. Rowland Briant made some very sensible remarks upon the subject, from which the following are chiefly extracts:

The first point I would emphasize is, that all mounting accessories should be selected, that they may serve and not master the picture that is the occasion of their use.

The purpose of mounting and framing, at its simplest, is to put the picture into a convenient condition for looking at, and to protect it. They also serve the additional purpose of separating it from its surroundings on the walls of a room, or from other pictures in a gallery. These I take to be the chief and very legitimate ends sought after. But mounting may have two other effects—it may help to concentrate attention on the picture, which is good; or it may attract attention to itself at the expense of the picture, which is bad.

From another point of view a mount may be considered to support a picture, as a background does a figure, which suggests the idea of suitability for its purpose, either by congruity with what it supports, or by contrast with it, by neutrality, or by any combination of these qualities. As an example of congruous mounting, take a sepia print on brown paper, or a pale black and white on gray paper; of contrasted mounting, a red print on a green mount; of neutral mounting, almost any print on English gold. It will be noted that the danger of congruous mounting is the effect on half-tones, and of contrasted mounting a possible violence of effect, that may easily become distracting.

A white or very light mount kills all the high lights of a picture, as a gray one does all the half-tones, and a black one the shadows, which last may be most valuable at times.

Gray and half-tone mounts are usually anything but satisfactory, but the introduction of a *small* amount of black or white may make them much better, by giving a definite standard.

A contrast in *tint* between the mount and print removes some of the objections to the use of a half-tone mount, but it introduces an almost worse trouble, that of color, with its possible violence or incongruity, and its generally killing effect. For instance, a brown mount will make a sepia print look purple, and a cream or green gray one will make a black and white print look blue.

Taking one purpose of mounting to be the separation of the picture from its surroundings, the width of margin becomes an important point.

I would put it, the smaller the print the wider the margin wanted. A large picture looks well, looks best probably, framed close; but a small one seems to need a wider margin than a frame alone, as ordinarily made, will give; and in using wide moldings there is considerable danger of overweighting. The hardest thing I know to treat effectively is a small print, low in tone. I suggest as possibly the best way to frame it close with a thin, flat and plain molding some three inches wide, with a very narrow slip—perhaps ¼ inch of dull gold—behind the glass. Very small prints I would treat similarly, only instead of mitering up the frame, I would cut an opening in a piece of board. The frame would be either black—dull, not shiny—or dark stained, the grain of the wood taking the place of lines in the molding. The omission of the miter joints is very desirable for small frames.

For large pictures I like a bold, deep molding, black or nearly so, with or without a slip of gold. On a crowded wall such frames look very well, and are a great help to the picture.

Few people take the trouble to work out their own frames; few really know what they want. Perhaps with a vague idea, you go to a practical man: you may trust him however to do his best to conventionalize it. If few know what they want, still fewer know how to get it done; and unless you do your own work, or have it done under your own eyes, it is useless to give general directions. Simplicity is the last thing a frame maker likes, or will let you have.

Returning to the original idea of framing, that of protection, I would point out that a deep molding gives so much that, except for cleanliness, glazing is hardly necessary. But whenever glass must be used, "picture glass" should certainly be avoided, and patent plate (that is, thin plate), selected for its freedom from color, be employed. I believe no one who has not actually tried would credit the damage done to the tones of a picture

by bad glass, and the great improvement resulting from a little extravagance in this department.

As regards decorative framing, I have little to say or suggest. I see no reason why a room should not be hung with tasteful or decorative frames, as with ugly china. In these days of collecting manias I wonder that we have not had a craze for old frames. I fancy there are a good many here who could help an enthusiast to start well.

But apart from this, a good frame with a suitable picture—photographic or otherwise—may be very ornamental and really decorative ; more so, perhaps, than is much of the bric-à-brac that finds place in our halls and drawing-rooms. For this sort of purpose, however, the frame comes first, and probably the color of the picture is the chief and only important point afterward, the subject being quite subordinate— a mere matter of balance in line and tone. It is not a case of framing to a picture, but of picturing to a frame, a department of work not unworthy of some attention, and which might come as a relief after trying the last discovered developer. An ivory white frame with a red carbon print, or a semi-Japanese frame of gold and bronze with a sea-green carbon print, not in the middle, or a filigree silver frame with a very delicate pale black and white print could, I imagine, be made very telling and worth looking at. It is a branch of work, though, that belongs more to the decorator than the photographer.

This question leads back to the point we started from: is the frame to be master or servant? There is no compromise, it must be one thing or the other—that is, it *will* be, notwithstanding all efforts at compromise. From the picture producer's point of view, there can be no hesitation as to the position the frame should take. For my own part, a frame should be considered and selected with as much care as the surface texture of the printing material, or its color—points not absolutely material to the picture as such, but most helpful, or the reverse, in obtaining particular ends. The only general rule I would suggest is that simplicity, but not commonplace, should be sought after, the purpose being to keep all the accessories of mounting and framing in the background, to get what help you can from them there, and to concentrate attention on the picture.

NOTE.—Volume XXIV. commences with next issue. If you can get a friend to subscribe, as well as yourself, you will be doing us a good turn, and benefitting yourself as well very considerably.

EDITORIAL NOTES.

AS THE result of some experiments reported at a recent meeting of the Association Belge, M. Gife stated that the amount of grain in negatives was in no way influenced by the developer, but rested solely with the ripening process employed in the manufacture of the emulsion. A plate cut into strips was developed with iron, pyro, hydroquinone and amidol. When examined under a microscope the size of the grain was the same in every case.

There is undoubtedly a big field open for a grainless and rapid gelatine dry-plate. Gelatino-chloride plates have a much finer grain than those prepared with bromide, but the former are too slow for practical work. It is usual to find that the greater the speed of plate the coarser the grain. For many purposes, such as astronomical and microscopical photographic work the grain is a very serious disadvantage.

THE question of closing photographic galleries has been for some time agitating the minds of German photographers. They have at length decided to charge an extra price on that day, the advance being about one-half of the usual terms. We think this a step in the right direction, as it will prevent many persons from choosing the Sabbath day for having their portrait taken. Unfortunately, in Germany, with a very large portion of the community, Sunday is practically the only day they have free to do what they wish on their own account, and, therefore, the photographer who closes his studio on that day must of necessity lose a very large percentage of his customers. We speak, of course, of the working classes. The photographer who caters for the elite can easily afford to close his doors on the day of rest.

WITH this issue our work for the year is done. One more completed volume, the twenty-third, to be put up on the shelf alongside the others. The year has been a hard one. All around us we have heard of failures, bad business and distress. But through it all we are pleased to say that our magazine has been steadily advancing, and at the present day we have a larger number of subscribers on our books than ever.

THE improvements we have made may have had something to do with this increased support, and we can confidently assure you that we do not mean to stop here. Our next issue commences the new volume, and several alterations and improvements will be noted, which we hope will be acceptable to our readers.

FUTURE numbers will contain even more original matter than heretofore, and besides the editorials and editorial notes we shall give a *résumé* of all the most important photographic events that have happened all over the world, and extracts from our foreign contemporaries.

THE reports of society meetings will be inserted if secretaries will assist us in this. Such reports, however, must be brief, interesting, and reach us by first post Monday morning. Stale news or matter of purely local interest will not be inserted.

OUR correspondence column will also be open for the discussion of subjects of interest. All photographic questions will, as heretofore, be cheerfully answered and any instruction or assistance given.

IF any of our readers are conversant with any particular branch of photography, we shall be glad to publish short articles upon such subject from their pen. At all times we shall be glad to consider writings upon photographic subjects, and to return them if unsuitable for our columns.

With the new year we begin a new page with new resolutions.

Auf wiedersehen!

ROBERT D. EWING.

WE were grieved to learn, through an old friend, not long ago, of the death of this veteran photographer and photographic merchant. The newspaper clipping handed to us reported the sad facts as follows:

EWING.—At his residence, in Buffalo, on Friday, the 24th November, Robert D. Ewing, Esq., recently of Toronto, in his 65th year.

Funeral from Union Station in the Necropolis, on the 27th November, on the arrival of the 12.15 train.

This announcement recalled many recollections of earlier days. The writer first met Mr. Ewing about thirty years ago, when he was employed in the photographic department of the Scovill Manufacturing Co., then at No 4 Beekman Street, New York City. A tall, stout, healthy-looking Scotchman came into the salesroom one day and announced himself as a photographer from Peterboro', Canada, who was about to leave for Toronto, where he expected to open a larger and more extensive photographic studio than he had yet been proprietor of. He gave his name as R. D. Ewing, and we all found him a very pleasant, genial man, of undoubted integrity and full of Scotch energy, shrewdness and perseverance. The writer reminded him that he was about to compete with Mr. Notman, whose name at that time was one of the best known throughout the entire photographic world. Mr. Ewing was confident in his own powers, and the result justified this confidence.

R. D. Ewing was born 1828 at Burnhouse, Galston, Scotland. He graduated from Glasgow University, and opened an academy or high school at Greenock, Scotland, where he taught five years. In 1853 he came to Cobourg, Canada, and opened a studio, where he remained a few years. He then sold out to E. Stanton. Mr. Ewing next went to Peterboro, and opened a gallery, where he also remained but a few years, selling out to Sheriff Hall's Son. He then went to Toronto, as related. This was in 1868.

Shortly after he located in Toronto as a professional photographer, he opened a department devoted to the sale of photographic goods, as did so many other leading photographers throughout this country at that time. There were few exclusive photographic stock dealers then. The drug trade and prominent professional photographers were the distributing agents for photographic stock outside of New York. Mr. Ewing started originally as a Daguerreotype artist and continued his professional efforts after combining his gallery with a photographic stock depot.

Mr. Ewing's business grew rapidly and continued to expand, until at last he became so large a buyer that he went to Europe to buy his goods direct from the other side.

His next move was to embark in the frame business, and he soon had a large factory for carrying on that department of his work. The amount of energy required for one man to attend to so many things, and to do it so well, was, we think, the principal cause of Mr. Ewing's death. He consumed his own vitality.

Mr. Ewing was a very domestic man, enjoying a most happy family life. He was much esteemed by all his associates in the photographic profession as well as in the photographic business, and leaves many warm friends behind.

Mrs. Ewing survives her husband. He also leaves three sons and two daughters.

Mr. C. M. Chittenden, formerly with the Scovill & Adams Company, was an especial friend of Mr. Ewing, and it was from him that the writer learned many interesting facts concerning Mr. Ewing, particularly those relating to the social and domestic side of his singularly attractive character. He is also indebted to Mr. David H. Hogg, the photographic merchant, of Montreal, for information contained in this necessarily brief sketch.

W. I. A.

A PHOTOGRAPHIC ANTHROPOLOGICAL EXCURSION.

One of the most interesting, instructive and pleasant incidents of my whole photographic life was an excursion from Chautauqua Assembly grounds to that great Indian reservation, stretching from Cattaraugus County to Erie, and up to the lake of the same name. My esteemed friend Prof. Fredric Starr, who for a number of years had instructed Chautauqua classes in geology, paleontology and anthropology had planned the excursion to give his many scholars ocular demonstration on the face and form of the North American aborigines. The Seneca tribe, with its many subdivisions, is quite numerous, and their habitations, granted to them by the government, covers more than 40,000 acres of land in the two counties. These people are tolerably well cultivated, and among them we have found some of scientific education and linguists. Our professor, anxious to perpetuate what he was about to lecture on *en voyage*, applied to the School of Photography for assistance and invited us to join the expedition. We readily assented, myself, the genial Espey, of Alleghany, and his clever son Morton, the stalwart and sterling Charley Cross, of Minneapolis, and several of the younger students joined, not to forget Mrs. Coulson, the reporter for the *New York Tribune*, who intended to write a flaming article on our exploits, which by the way has never been done to this day.



OUR PARTY.

It was on a pleasant Saturday morning in August, when about 30 of the professor's class and a few of the photographic school assembled at the railroad station to join in the trip. We were running out of the depot, when kind Howard Hukill and Dr. Christianey, an India Missionary, who had spent a quarter of a century among the Hindostanees doing missionary work, came breathless down the hill. We were sorry to leave them behind.

Our objective point was a small country station in Erie County, about 30 miles south of Buffalo, but the name of which has escaped my memory. Thence we were to travel to Newtown on the hill, the central village of the Senecas.

Newtown is situated up in the mountains, about 12 or more miles east of the railroad station; the country is rugged, the roads are bad, and by dint of much persuasion we finally obtained a conveyance in the shape of a one horse buggy, and a hay wagon, driven by a half breed.

But we all were earnest folks, eager to learn from the Professor's instruction, anxious to compare the Indian inhabitants' form and face with those of the pale faces, and after collecting "golden rods," quite favorably looked upon by Chautauqua people, and petrified shells, of which the country there abounds, we mounted the hay wagon good humoredly, and going over hill and dale up on precipitous mountain declivities, forded rivers and creeks, till the beautiful country, the Indian reservation, spread out before us. A far distant view of the spires of the Alleghanies first attracted our attention.

One of the first really interesting tableaux presented to the camera was a number of young Indian girls riding ponies, bare-legged and astride, and followed by a pack of ugly and shaggy wolf dogs. Some of the photographers were fortunate to come near enough to them to snap a Waterbury at them. We followed these girls and came to a cottage where, to the Professor's great delight, we found a six-days' old papoose swinging in a home-made hammock. Here the Professor gave his first *stante pede* lecture; he told us how the hammock had been first found among the Carribeans. How, by means of British man-of-war influence, this now considered-to-be very comfortable household utensil had traveled all over the world, finally finding acceptance among the North American Indians. The ham-

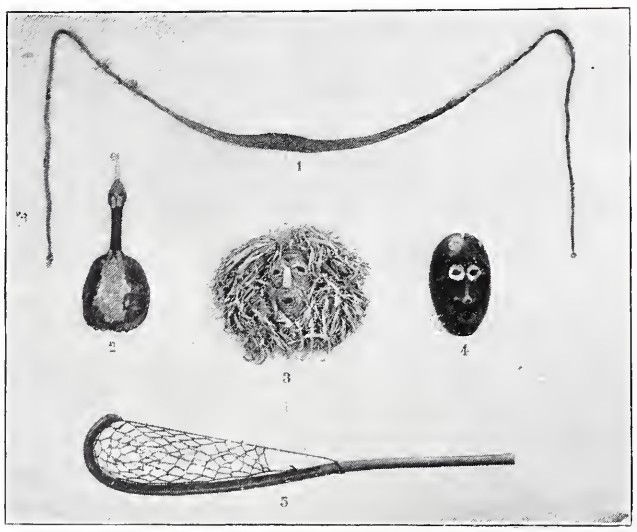
mock is of Southern origin, so the Professor said, not of Northern, as many assert.

An Indian chief mending his net next engaged our attention. On the road we found several very interesting subjects—an old chief repairing a boat, a band of musicians, with brass instruments, but one of the most interesting and instructive pictures were head and bust portraits of two boys, afflicted with the scourge that destroys more of the American aborigines than cultivation or fire water—scrofulosis. The Senecas of this section are all apt scholars, the majority of them read and write, and are Christians, Baptists, Methodists and Presbyterians, although many Pagans are among them, who have better preserved old Indian customs and manners than their Christian brethren. The Pagan considers himself still the lord of the soil and deplores much the ascending of the pale face over the native born.



AN INDIAN CHIEF.

To please the Professor we took several pictures for anthropological measurement, one of which, a chief of the "Wild Cats," appeared in "The American Annual of Photography." To enable the anthropologist to make correct measurement of skull and facial proportions a strict profile and a strict full face of the subject must be taken. Three-quarter views are of no scientific value,—they are useless in reality. Professor told us photographers at the same time that were we called upon to photograph a skull for anthropological measurement, five views of it must be taken, viz.: full face, profile, back of the head, top, and bottom, where the vertebræ column has been separated.



SOME INDIAN CURIOSITIES.

We met many farms and farmers in prosperous condition, but going up into the mountains, prosperity seemed to disappear gradually, till finally when we reached the mountain top, the central part of the reservation, with its meeting and dance houses, the domiciles of the Senecas were but small huts,—hovels, so to say.

There is no prosperity among these people. They are poor, till an acre or so of ground, raise a cow and calf, and a few pigs, just to give them the wherewithal to live on. To stalk a deer, to fish or to follow the catamount to its rocky recesses, is what he delights in. While the people in the valley had no objection to be photographed, the mountaineers were almost impossible to be persuaded to sit for a picture. Neither candies nor cakes, tobacco or cigars, were persuasive enough to keep them still for a moment. One of our party had a "Henry Clay." He was not able to get a single picture. As soon as he opened the front of his apparatus and displayed the brightly polished metallic parts of it, children and women ran off as fast as they could, while the men turned away growling hm, hm, ha, ha.

My little 4 x 5 "Waterbury" did better execution than the "Henry Clay," and one of the trophies I brought home was a group of three Indian maidens, not as handsome as the old Juniata song pictures by Miss Princess Alfarata, but hideous-looking, bony and coarse creatures without the least kind of refinement, although they were able to read and to write. Their euphonious names were: Hemlock, Sundown, and Cloud in the Sky, respectively.

A very intelligent chief by the name of "Jake," who had been employed as a porter in a store in Buffalo, was anxious to have his child, a little girl of two or three years, photographed.

Professor wanted such a picture very badly, to show the relation of the North American Indian with the Mongolian race.

Position and form of an Indian child's eye, forehead, ears, and general characteristics of the head are unmistakably Mongolian, but change in after years very considerably.

On our way home we stopped at the orphan asylum, a well conducted establishment giving home and comfort to about 300 Seneca children. It is divided into three classes, for boys, girls and young infants. The lady Superintendent called the older children to their handsome chapel, where a life-size oil portrait of "Red Jacket" was displayed, and they entertained us with recitations and the singing of religious hymns.

Some of our party had purchased from the Indians implements and ornaments to take home with them, as shown in the picture on the preceding page. No. 1 is a kind of shoulder strap used in carrying heavy burdens; No. 2 a turtle shell rattle; No. 3 a corn cob mask used when dancing at the new moon's first appearance in the heavens; No. 4 a mask used when the moon is at a certain stage, and No. 5 a Lacrosse racquet.

When arriving at the station and our train not in yet gave time for a social luncheon, and before the glorious sun had sunk into Lake Erie we returned to Chautauqua well satisfied with our day's work.

Charles Ehrmann.

FINE LINE SCREEN PLATES AND THEIR USE.

(Read at the World's Congress of Photographers.)

(*Continued from page* 767.)

So far this paper has only generally treated on the production of single line screen plates. The subjects now under consideration will be. The proportion of opaque line to transparent space and the manner of use to give the best results; the cross line screen plate, how produced; the proper proportion of opaque line to transparent space; manner of use, and why, as a screen it is the best and most generally used; the production of screens and the causes leading to it, etc., etc.

In the use of the single line plates the effect of "lines and dots," "black lines" more or less wide to represent the detail and "dots" to represent the highlights, as seen in the resulting etching or reproduction is by far the most truthful and pleasing manner of reproducing with the single line plate.

Experience has taught that the best method to obtain this result is to use two single line screen plates of exactly same number of lines to inch, but one having the opaque line *three times* the *width* of the *transparent*, the other, the opaque and transparent lines equal, but running in the opposite direction.

The use of the screen would be as follows: 1st, a special kit is devised for the camera plateholder —that will hold the screen firmly and at a certain distance in *front* of the sensitive plate; the exposure is given of sufficient length of time to bring up all *detail* in the shadows, and the separation of the screen and sensitive plates should be such that the opaque lines, resulting in the *highlights* of *negative* will be of same width as the black lines of the screen—in other words, the light from the highlights of picture or positive, passing through the narrow openings of screen, *will spread* and make a black line in the negative, as above described, if the screen and sensitive plate are separated proper distance; while in the middle tones the black lines will be *more* or *less* wide, according as the detail is light or dark.

A negative made in the above manner, while giving an exact reproduction, would lack *contrast;* the highlights being represented by very narrow black lines would not be *as light* as they should be; these lines must be *broken up into dots*, and to do this the screen with even lines must be brought into use. After the exposure, as described, the plate-holder is taken to the dark room and placed with the back or door to the wall. Remove the slide—take out the screen and in its place put in the one having even lines. An exposure now should be given to *simply cross the lights*—no more, or the reproduction will lose in detail and be too light.

The foregoing is the true principle of obtaining a correct reproduction of an original, by the use of single line screens. The elements to secure success being that the operator understands thoroughly the old wet plate or collodion process of photography, as all negatives for this or any engraving method should be made with wet plates.

In the use of the single line screens it will be seen there are two exposures; the plate-holder must be removed from the camera, taken to the dark room and the screens changed; if the special kit holding the screen and sensitive plate is firmly held in place, and the plate-holder fits snug on the camera box, there will not be a particle of danger of movement of the sensitive plate already having one exposure, and the results, if properly done, are elegant. Yet, the time taken up in making the two exposures is considerable. The risks of getting a perfect negative are nearly doubled from what it would be if one exposure only was given; and in these days of sharp competition, when work must be finished with dispatch, any saving of time is a great boon. Therefore a method devised of

obtaining results equally as good, if not better, with *one exposure*, was a great advance.

The discovery of the *crossline* screen plates marked a new era. The results were found to be as a rule far superior and the chances of failure, from the fact of one exposure, considerably lessened.

HOW PRODUCED:

If the glass is covered with a wax ground, the lines cut through this, then etched with hydrofluoric acid as described, then it would be necessary to rule either two plates in the same direction and, when brought face to face, the lines would cross at right angles, or, after ruling the plate one way diagonally, to turn it about and rule it the other way so the lines would cross at right angles on the same plate; the latter process or method having the disadvantage of being liable in the etching to eat away the corners of the intersection and not fill properly with the ink, most likely in isolated places, thus making the working of the plate somewhat uneven. In the other method, or where the lines are cut through an opaque film, success depends, 1st, on the evenness of the film: 2d, on its character; if too brittle ragged edges would be the result; and 3d, on the tools employed in cutting the lines; two plates would have to be ruled singly and in the same direction, then brought face to face.

The ruling machine used for the purpose must be as perfect as mechanical ingenuity can devise—any deviation in a line, no matter if a hundredth or one two-hundredth of an inch, can be instantly detected on examination.

THE PROPORTION OF BLACK LINE TO TRANSPARENT SPACE IN A CROSS-LINE SCREEN:

In reproducing a subject when the reduction is great, or when the light parts are very strong as as compared with the shadows, a screen in which the proportion of opaque lines predominate would give the best result, but the most generally useful screen would be prepared as follows: take two single line screens ruled exactly alike, diagonally, in same direction, and in which the opaque line is one-half the width of the transparent; bring them together face to face; the lines will then cross at right angles, and the transparent spaces will be equal in area to the opaque lines. This will make the most generally useful screen for all purposes, the manner of adapting the use of the screen to different subjects being well known to the professional negative maker.

THE MANNER OF USE OR ACTION OF THE CROSS-LINE SCREEN.

As will be seen from the foregoing description, the opaque lines cross at right angles, making a *square* transparent opening. To illustrate the working: Put the screen and sensitive plate in the plate-holder, separated the proper distance; place in position on the camera; point the lens to a *white card* and make the exposure, if properly timed; the light passing through the transparent openings of screen will not form square, but round, black dots in the negative and will *join solidly* at the edges, leaving the *intersections of the line as a transparent* dot. This white card would then represent the highlights of a picture; it is evident then, that in the detail these black dots in the negative would be more or less large according to the gradation of light and shade in the picture, while in parts of subject having black without detail, there should be no opaque dot whatever.

THE REPRODUCTION OF SCREENS AND CAUSES LEADING TO IT:

The nature of screens reproduced by photographic means: The making of an original screen, not only from the difficulty attending it, but the very expensive outfit required, makes it necessary to charge what would seem to be an exorbitant price for them. Nearly five years ago the writer of this conceived the idea of manufacturing screens, first making an original, then reproducing from it, and at a price within the reach of any good engraver. At that time good workable screens could not be had at any cost, and the number of engravers in the United States making half-tone reproductions could be counted on the fingers of one hand. This seems an exaggeration, but it is literally true.

Look at the half-tone work of to-day and the countless numbers engaged in it; see the beautiful reproductions, artistic in every sense of the word, that are being done with the use of fine line screen plates and the half-tone process, and may I not feel a pardonable pride for my share in the advancement of this beautiful art?

The impossibility of obtaining original screen plates, and the great demand created for them as soon as their possibilities once became known, led to formulating the following reproduction process as worked by myself for the last four years:

First. The original screen-plate is made by the method described, of first coating a prepared glass with an opaque film; the lines are cut through this diagonally, one way only. The cut or transparent

line one-half the width of the opaque. Whether an original would have eighty or up to two hundred lines to the inch, the relative proportions for practical working should be the same. The original being prepared, the next important step is the selection of the glass for the reproduced screens. It is absolutely necessary that the glass be crystal plate—perfectly flat and without bubbles or scratches, and best if about one-tenth of an inch in thickness. This is prepared as collodion dry plates. It was not without many failures and discouragements before a suitable method could be formulated, one that would give an intense black line with clear glass for space, and, though finally got, yet it requires the most extreme care, or failure will result.

The original screen and sensitive collodion dry plates are placed in absolute contact; one exposure is made; the plate is then turned and another exposure given with the lines crossing at right angles. The plate is then developed, fixed and intensified, and after washing and drying is ready for sealing to a cover or protecting glass.

In the method just given for reproducing by making two exposures to obtain the cross lines, the cross section, or where the lines cross, is somewhat enlarged so that the transparent opening is *not* exactly square and for this reason, provided the lines are *perfectly opaque*, and the openings or spaces transparent, it makes a very much *better working* screen than the original itself, giving more of the effect of a well shaded photograph, and without a certain harshness peculiar to a reproduction with a screen having the lines cross with sharp angles.

It is a notable fact that if a screen could be prepared with the transparent openings *round* and in the proper proportions, it would give the most pleasing effect and be much the easiest to work, but such screens could not be made commercially. I succeeded at one time by a process of copying to obtain such a screen, but it was before the days of sealing. I used it as long as I was able to preserve it, but from that day to this I have not had time to make another.

It might be argued that the film of collodion on a collodion dry plate would be some obstruction to the light, but if clear, as it should be, between the lines, it will be as transparent as the glass itself, and so thin that it could not possibly be any obstruction.

I could readily enlarge on the subject at hand but feel that already too much time has been taken and that my paper should come to a conclusion.

I thank you all for this opportunity of explaining principles that generally are very far from being understood, and I trust that in so doing I have not been irksome to you.

M. Wolfe.

GELATINO-CHLORIDE PAPERS—THEIR ADVANTAGE AND MANIPULATION.

(*Continued from page 768 and concluded.*)

A GOOD gelatine paper, or one that is coated uniformly and evenly, can be toned with either a separate or combined bath; the bath to be used depending in a measure on the tones which the customers require. The combined bath is best suited for a warm or medium tone, and the separate bath for a medium or dark tone.

In handling prints with the separate bath, the manipulation is practically the same as with albumen paper. It may take a little more preliminary washing, and the toning bath must be tested more carefully, so as to have it as neutral as possible. Prints should be thrown from the toning bath into a weak salt solution and allowed to lay there for a few minutes and then, if the batch is a large one and will take some time to tone it, they should be put in clear water. The fixing bath should contain alum, with enough alkaline to neutralize the excess of acid in alum, and sulphite of soda; the sulphite acting as a restrainer to prevent the prints toning down while in the fixing. The final washing should be a thorough one, the prints being kept in motion constantly so as to secure a thorough elimination of the hypo. The mounting is done in the same manner as with albumen paper.

The combined bath is a very simple one, and can be worked by any one possessing an ordinary amount of intelligence. The only place judgment is required, is in taking the prints from the toning bath at the right time. The solutions are mixed by weights and measures. To tone the prints you take a given number of prints to a given amount of solution, and to be successful you must use a thermometer, keeping the temperature at about 50 degrees Fahr. This reduces the whole process to a mathematical calculation. The operator working to a given rule knows that he will produce certain results. An important element in handling prints in the combined bath is to keep them moving constantly, as when the prints are first put in, the silver has to be fixed out. If they are allowed to mat together the small amount of hypo solution between the prints will not be sufficient to take up the silver. As a result, there will be an excess of silver over hypo and consequent sulphurization. This can easily be overcome by putting in fourteen or fifteen prints at a time, handling all the prints over each time this number is added. A second important point is, that this solution should not be used a second time. All the prints that you expect to tone in it should be put in at once, one at a time of course. To tone with the combined bath, mix the solutions carefully according to formula; dissolve the hypo and alum together, then dissolve the borax in hot water and add while hot. Estimate the number of prints in the batch and to each fifteen cabinets, or their equivalent, allow 8 ounces of A and 1 ounce of B solution. Reduce the temperature to 50 degrees Fahr., and immerse prints in the toning bath one at a time face down. When ten or twelve prints are in, turn the face up and see that there are no air bells on the prints. Then put in a few prints as before, turn them face up, handle over those already in the tray, and repeat in this manner until the entire batch is in the toning bath. Now draw all the prints to one end of the tray and as rapidly as possible throw them one at a time to the other end, repeating this handling until the prints are toned.

When toned, throw the prints into a salt solution and from there to the subsequent fixing bath, which should be used to insure the thorough fixing of prints and their permanency.

The chemicals to be used with gelatine paper are the same as you have always used, except the alum; this should be crystallized or ground alum, and not pulverized, fused or burned. It will probably surprise some of you to learn that one of our best points often works to our greatest disadvantage; that is, the paper lying perfectly flat in the solutions. This makes it very easy to handle the prints, but it frequently happens that a man who has had no previous experience with the paper does not notice how flat the prints lay, and allows them to mat together in the toning, fixing or washing solutions. You will all realize that prints allowed to mat together in this way are liable to be defective. It is of great importance that the final washing should be done by hand, or with a tank that will keep them in constant motion.

In conclusion I want to say a few words for solio. Although but a little over a year since its first introduction, it is to-day on the top round of the ladder and still climbing. The phenomenal demand for it, which obliged us to enlarge an already large factory, could have been caused by nothing short of real merit. Its uniformity and the ease with which soft, rich but brilliant effects are produced, have combined to bring it into general use over almost all of the civilized world.

Our three coating factories, two in Rochester and one in Harrow, Eng., are equipped with every device that a nine years' experience at coating emulsion papers could suggest, and that money and skill could procure. We have made an almost perfect paper in the past and intend to make strenuous efforts to produce, if anything, a better one in the future, and are confident that if you will give solio a trial sufficiently thorough to become accustomed to working it and able to produce the best results that can be obtained with it, you will become a convert to, and an enthusiast in favor of solio.

Photographic Societies.

THE SOCIETY OF AMATEUR PHOTOGRAPHERS OF NEW YORK.

A SPECIAL meeting of this Society was held on Tuesday evening, December 19th inst. It was announced that Mr. R. D. Gray would read a paper on his experiments and results with color photography, but owing to the unsuitability of the screen he was unable to keep his promise. Through the courtesy of Chancellor McCracken and Prof. D. W. Hering, of the University of the City of New York, the photographic exhibit of the University at the World's Fair was shown. This consisted of the early cameras and apparatus of Prof. John W. Draper, and also photographs and photomicrographs.

Professor Hering explained the apparatus. The first camera was made in 1839 for Professor Draper by a carpenter in McDougal Street and University Place, the design being taken from the first contrivance used by the Professor, namely, a cigar box fitted with a spectacle lens at one end and a place for the sensitive plate at the other. This was destroyed by fire.

In the camera shown by Professor Hering several holes were made to let in light. The lecturer, while admitting that this was rather an unusual thing in a camera, explained that Professor Draper was at that time making researches on light, and no doubt used these apertures for various experiments.

The second camera, made in 1840, possesses an adjusting arrangement and focusing glass. This was the first specially constructed for taking photographs of the human countenance. Another camera was also shown, together with a box for sensitizing the daguerreotype plate with iodine. A photograph, said to be the first sun picture ever made, was then shown. This was sent by Professor Draper to his friend, Sir John Herschel. It was thought to have been destroyed in the university fire, but a letter was discovered, the picture traced, and found among some old papers of Sir John Herschel. Other daguerreotypes were also shown, representing an oil painting, engraving, piece of statuary and drapery, evidently tests for various objects. Five photomicrographs, taken in 1853, were next exhibited. These were remarkably good, and, as Professor Hering said, "many amateur photographers of to-day would feel proud to be able to make as good."

Another interesting picture was a daguerreotype of the solar spectrum taken in Virginia in 1842. Here the invisible or ultra violet rays of the spectrum are plainly photographed. This possibility the lecturer stated was not made known till thirteen or fifteen years after when Bunsen made his researches.

A very amusing discussion then took place with regard to the alleged first sun-picture of the human countenance.

Mr. O. G. Mason said that he was secretary of the first Photographic Society and Professor Draper was president. He very much doubted if that was the original first picture. The one he remembered Professor Draper having shown was quite different and not so good.

Professor Hering stated that he had the manuscript letter of Prof. Draper describing the sending of the picture to Herschel, also a letter establishing the fact that that was the one sent. But he admitted that there was no direct proof that this was the first actually made. There was little doubt however that this is the earliest perhaps in existence.

Mr. Canfield thought that Professor Draper had probably made three or four portraits about the same time. As the operation consisted in sitting for twenty minutes in the sun we very much doubt if Miss Herschel would have suffered many repetitions of the martyrdom even for the cause of science.

Mr. H. J. Newton said that Professor Draper had often shown him his first picture, and that he would be able to recognize it if he could see the back of the copper plate. This was sealed up, however, so that we are still left in doubt.

Mr. Mason said that Professor Draper used to exhibit his first picture as late as 1855 or 1856, so that it is impossible for the Herschel family to have had it. He did not think it possible that Draper would have sent his first away.

Mr. Newton said that he was once in possession of Draper's memoirs in which he stated that his first picture was of his wife in 1839.

Mr. Murray was understood to say that he was acquainted with one of Draper's pupils who said that the very first attempts resulted in a picture of the collar and

cuffs, or whitest parts only of the sitter. The picture in question was so perfect that there is little doubt but what it was obtained after many trials.

At the conclusion of the meeting there was a successful exhibition of the "Night Hawk" camera and a demonstration of the advantages of the "Floragraph Ready-Sensitized Celloidine" paper. Both features are the latest achievement of the Manhattan Optical Company, New York City.

SYRACUSE CAMERA CLUB.

MATTERS with this Club have persued the usual even course since the last reports were sent you. Several new members, all enthusiasts with the camera, have been added to our membership recently, bringing our total membership close to the one hundred mark.

In response to the invitation of the Interchange Directors to get up a special set of lantern slides illustrating the World's Fair, several of our members are diligently at work preparing them, and have many good negatives from which to make them. If every club in the Interchange enters heartily into the scheme, it can be easily seen that the directors will be able to select a very valuable set of slides from the contributions of the several clubs. This would afford splendid material for public exhibitions for each club in its turn.

Preparations for print exhibitions, conjointly with the Albany and Buffalo Camera Clubs, are under way, a committee, consisting of Messrs. Will H. Olmsted, Fred Frazer, John D. Pennock and H. F. Smith, having the interests of this Club in hand. Dates for the respective exhibitions have yet to be made.

Friday evening, December 15th, Mr. W. W. Byington, President of the Albany Club, favored the members with an illustrated talk on Ireland. Mr. Byington having made an extensive tour of that country, his illustrations and descriptions were doubly interesting, and did much toward changing or modifying preconceived ideas of the place.

Friday evening, January 5th, occurs the Annual Meeting for the election of officers for the ensuing year.

Notes and News.

The issue for January 5 will be a very fine one. See that you get a copy.

The members of the California Camera Club gave a grand banquet at the Maison Doré, San Francisco, on December 16th. This was the first affair of the kind held by this Society.

The Scovill & Adams Co. have sent out the following notice to their clients: "As it has now been definitely settled by the action of the Committee on Ways and Means that the proposed new Tariff will not take effect before June 1st, 1894, the business of the entire Spring can be done without danger of a change in values."

R. M. Davis, the well-known photographic merchant, has removed from Nos. 1728-32 Arapahoe St., Denver, to 1722 Lawrence St., the same city.

If you are not a subscriber, now is the time. Next week's issue will commence the new volume. You will find an application form in the advertising pages.

G. Waldron Smith, the successful professional photographer, of Boston, has offered his well-known gallery for sale, as he has become General Agent and Vice-President of the Duplex Car Co.

Ready.—"The American Annual of Photography and Photographic Times Almanac" for 1894, is now ready. "Mosaics" for 1894 is also on hand.

Improved.—Our esteemed contemporary, "The American Amateur Photographer," is showing great improvement under the able editorship of Mr. Alfred Stieglitz.

No self-respecting photographer can do business without THE PHOTOGRAPHIC TIMES is the opinion of *Echoes*.

We have recently had a pleasant call from Mr. J. D. Record, formerly connected with the Harvard Dry Plate Company, which discontinued business last July. Mr. Record has had long and successful experience in compounding of emulsions and manufacturing dry plates. We are glad to know that he has entered into business under the name of The Record Dry Plate Company, with works at East Milton, Mass. (near Boston), and is placing upon the market and to the trade The Record Dry Plate. Your attention is directed to his advertisement in our Christmas number and subsequent editions.

The Editorial Table.

Photography Indoors and Out. By Alexander Black. Boston and New York: Houghton, Mifflin & Co.

We are glad to welcome this attractively illustrated handbook on photography. It is, as its sub-title states, "A Book for Amateurs," and will undoubtedly be popular with them. It treats the subject in an interesting manner, being rather more "literary," if we may use that much abused word, than many of its companions. It is, however, thoroughly "practical" and reliable. The illustrations are half-tone engravings from photographs, one or two of the author's own making, and the others by well-known amateur photographers. The frontispiece is a reproduction from Mr. Alfred Stieglitz' "Card Players," an engraving of which was presented in THE PHOTOGRAPHIC TIMES of December first, 1893.

The list of "books for reference" in the Appendix is surprisingly incomplete, there being only thirty-four volumes in all mentioned, and they seem to have been selected in a rather hap-hazard manner. For instance, Professor W. Jerome Harrison's "History of Photography" is mentioned, while no note whatever is made of his far more important work on "Photographic Chemistry." P. C. Duchochois is recorded in connection with his work on "Photographic Reproduction Processes," and "The Lighting in Photographic Studios," while nothing is said of his "Photographic Image." Andrew Pringle and W. K. Burton are both credited with two or three books, but no mention is made of their joint work, entitled "The Processes of Pure Photography," which is one of the most valuable photographic reference books extant, and the Annuals are entirely omitted from the list.

The book is neatly printed on good paper, and substantially bound in cloth. The price is $1.50, and we presume it can be obtained from the usual sources of photographic books.

From the New York Engraving and Printing Co., we have received a very neatly gotten up book of specimens of magazine and book illustrations engraved on copper by their enamel half-tone process. They are all first class.

The Columbian Desk Calendar, which is issued annually by the Pope Manufacturing Company, of Columbia Bicycle fame, is out for 1894, much improved in appearance. It is a pad calendar of the same size and shape as those of previous years, having a leaf for each day, but its attractiveness has been heightened by the work of a clever artist, who has scattered a series of bright pen-drawings through its pages. It also contains, as usual, many appropriate and interesting contributions from people both bright and wise.

Ross & Co.'s Catalogue.—We have received from Messrs. Ross & Co., of London, the eminent lens manufacturers, a copy of their latest catalogue. The fame of the Ross lenses is world-wide, and this little work describes the latest, including the Concentric lens, which is one of the most perfect objectives for landscape architecture, copying, etc. It gives uniformly perfect definition with equal illumination over an absolutely flat field of a circle of about 75 degs., the extreme oblique rays coming to a focus with the same sharpness as the central pencils. No stops are required to obtain marginal definition as in other lenses.

The Century Dictionary may be briefly described as "an extended dictionary and a condensed encyclopedia"; for it not only catalogues and defines 215,000 separate words (a greater number than was ever before included in an English dictionary), but it endeavors to enhance the comprehensiveness of its definitions by giving, in every case that permits of it, a brief description of the thing of which the word defined is the name. These descriptions are rendered of greater value in many cases by the splendid illustrations (8000 in all) which accompany them—not mere "dictionary cuts," but fine engravings, executed under the supervision of the Art Department of *The Century Magazine*. *The Nation* (New York) has said that "a single look at one of these engravings makes all plain when a column of words would fail." In most dictionaries one is duly grateful when one finds what one seeks; the user of the Century Dictionary, on the contrary, is being constantly surprised by the amount of unexpected information he encounters. It confronts him with new ideas about words and with new meanings; it gives an easily understood pronunciation; it makes the etymologies interesting; it accompanies the definitions with quotations that help to define; and by an elaborate system of cross-references it enables him to follow a subject through a long series of words, until all the knowledge bearing upon the matter has been brought to light. In short, to quote the *Pittsburgh Dispatch*, "The Century Dictionary is the first to give the sort of definition which an intelligent reader wants." Send for the handsomely illustrated pamphlet of specimen pages that the publishers have prepared, and which they will be pleased to send to any address on receipt of five 2-cent stamps. Address The Century Co., 33 East 17th Street, New York.

Queries and Answers.

186 J. CAHOON.—Will you please tell me which you consider the best all-around lens; the Gundlach Rectigraphic, or the Perigraphic? What is the difference between a 5 x 8 Rectigraphic and the 8 x 10 Perigraphic, as they are both of the same focus? Would not the 5 x 8 Rectigraphic do the same work as an 8 x 10 Perigraphic on a 6½ x 8½ plate?

186 *Answer.*—Were we to decide between the two lenses, we would doubtless pronounce in favor of the Gundlach. The Perigraph is a wide angle, the Gundlach built upon the rectilinear plan, hence the apparent difference in the focal length. A 5 x 8 Gundlach cannot possibly cover as much as a Perigraph 8 x 10.

187 W. H. HURLBURG, Hartford.—1. Can you give me a formula, using acid sul. with pyro in place of sul. acid and soda?

2. Can you send me the old Hoover formula (pyro)?

3. Is it better to use sul. soda in pyro, or the alkaline, and why?

4. When is the new "Annual" coming out? Is it going to be any good?

5. Can you tell me how much stronger a saturated solution of carb. pot. is than one of carb. soda (4 ounces soda to 16 ounces water)?

6. What do you consider the best acid for keeping pyro and sulphuric, oxalic, or citric good?

7. You will do me a great favor by sending me a postal if you ever get hold of a H. C. camera without lens, etc.

187 *Answer.*—1. If you want distinct information do not abbreviate so much. Do you mean sulphuric acid, sulphurous acid, or acid sulphite? We cannot make out.

2. We cannot.

3. You must use both, if sulphite of soda is what you refer to. Sulphite keeps pyro solution from oxidizing, and the alkali accelerates development.

4. It is out, and just as good as ever, if not better.

5. The alkalinity of a concentrated solution of carb. potassium is nearly twice as strong as one of carbonate of sodium.

6. If we preserve pyro in solution by means of sulphites, we want no acids. Otherwise nitric acid has done very well.

7. Scovill & Adams Co. do not deal in second-hand apparatus.

188 J. B. H., Memphis.—1. On page 702 PHOTOGRAPHIC TIMES for 1893 you give toning solution formula, 1000 c.cm., which is 1 litre water. With this you give 15 grammes nitrate lead. In the next column you say: "Small quantities of lead, say 1.5 to a litre of the bath, has a desirable action, but when 10 and 15 grammes are added, etc. Now which is right?

2. On the previous page, 2d column, 4th line, you say: "The sulphide showed *in* effect. Is not *in* put for *no?*

3. I do not find in this number the answer to my question as to the way to make sodium ferric oxalate, and I cannot get sodium oxalate.

188 *Answer.*—1. The article referred to does not at all express our own opinion, but is merely a controversy between Herr Gaedike and Professor E. Valenta. Any way, does Herr Gaedike wish to call attention to the action of larger or smaller quantities of lead?

2. The vernacular is correct as printed.

3. We have more queries to answer than there is space at our command. You will be answered in time.

CHAUTAUQUA DEPARTMENT

OF THE

Photographic Times.

CONDUCTED BY PROFESSOR CHARLES EHRMANN.

DECEMBER, 1893.

NOTICE TO STUDENTS.

"American Annual of Photography" for 1894 has been published on December 1st, as promised by the publisher. In reading matter and illustrations the present volume supersedes previous issues.

The "Annual" is not among our prescribed reading, but as it contains such an enormous mine of valuable information, we advise you all to study it diligently.

A new compound developer, under the name *Columbian*, has been recently brought upon the market. It requires the same treatment as all other Chautauqua developers in one solution, and one of its virtues is, that the same solution can be repeatedly used without detriment. Scovill & Adams Co. sell an 8-ounce bottle of it for the moderate price of 30 cents.

EXAMINATION PAPERS RETURNED.

In the advanced class, Term I., No. 801 rated, at 100 per cent. pictures received, Excellent.

EXCHANGE CLUB.

We publish herewith, without changing the original, the criticism on the November Exchange. In the main the report has been written judiciously, but we advise the worthy President of the Club to divide his attention equally between the artistic and the technic.

THE CHAUTAUQUA PHOTOGRAPHIC EXCHANGE CLUB.

The pictures sent for the Exchange of November, 1893, are exceptionally good. In the short experience of the writer as a member of the Club they are the best he has received, both as to artistical choice of subject and technical work. In reviewing them it has been difficult to decide between several as to which should be awarded first rank; but after a careful scrutiny I have arranged them in what I conceive to be the order of merit.

1.—Miss Ella S. Switzer sends "Evening Shadows," a river scene with rustic bridge. The subject is well chosen, and all the details of focusing, timing, development and printing are all that could be desired, and we gladly welcome her to the honor of first rank.

2.—"The Falls near East Greenwich, R. I.," by Miss E. E. White, is an excellent 4x5 of a charming river scene, with a waterfall in the immediate foreground—in every respect a well-worked-out picture. The only drawback, in an artistic sense—for which Miss White cannot be held responsible—is that the "falls" smack too much of the factory, being only a weir, consequently lacking the interest which natural rocks would have lent it.

3.—Miss Lucy D. Baldwin has evidently taken to heart the Professor's admonition in October last, and redeemed herself by a clever group of "Little Negro Boys." The darkey urchins are most interestedly watching the funny antics of a supplejack in the hands of one of the party, and have been caught while innocently unconscious that an observant camera had taken notes, and would repeat for others' enjoyment the story of their fun.

4.—"A Cross-Roads Post-office," by C. M. Fitzgerald, we presume to be a scene in the woods of California, at a point where a box is affixed to one of the monarchs of the forest, doing duty in the collection of the correspondence of the neighborhood. It is an excellent photograph, where sunny glints have been caught among the deep shadows of the pines, and makes a charming picture.

5.—"The Sycamores," by J C. Carpenter. In this picture is portrayed a most striking scene, showing some old trees, hallowed—and hallowed—with age, and strongly reflected in the placid waters of a lake beneath. A trifle longer exposure would have toned down the excessive contrasts in black and white, resulting from the strong sunshine and the umbrageous foliage, while a better picture would have been produced by choosing a point of view from which a fuller contour of the trees could have been obtained.

6.—"Making a Terra-Cotta Ornament," by Miss

Lydia Strawn. This is an interior, being the workshop of a worker in clay, and Miss Stratton has considerately chosen to send it because this class of pictures are so seldom sent to the Exchange, and remarks that it is from a favorite negative. It is a 5x7, taken on a Seed plate, with nine seconds' exposure. It had evidently been taken in a good light, and would have presented better contrasting light and shade by less exposure; but it is remarkable to notice the entire absence of halation around the windows in the distance.

7.—W. F. G. Geisse presents the far famed "Vigilant," in a picture that shows how energetically vigilant he himself must have been to have caught her almost full sail and passing broadside. But he gave it only one-hundredth of a second, and the crisp shadows with the fine detail in the rippling waters, gives evidence of the virtues of amidol, with which the negative was developed. The absence of clouds and atmosphere, however, is sorely felt.

8.—A. Neal, of Colorado, has christened his picture "A View from the Rocks." To us it seems as if the rocks *hid the view!* for they protrude so strongly that they might satisfy for investigation by a geologist, showing the strata well defined, not only in the rocks in the immediate foreground, but that of the solitary mountain in the distance as well. The strong light and shade, and the cloudless sky, show the picture taken in bright sun, while Mr. Neal's memorandum states that the exposure was four seconds, with a Waterbury B. lens, F. 35. One would not expect such fine definitions under these circumstances, and perhaps a larger stop and less time would have given a picture with less of hardness; while in this, and the preceding by Mr. Seisse, the desirability of using cloud negatives is very apparent.

9.—"A View in Jackson Park, Chicago, Ill.," by Miss M. S. Turner. This is a snap shot at the Great Exposition with a 4 x 5 film. It shows a picturesque corner, with one of the little bridges that span the Lagoon prominent, and an electric launch just passing. They are cleverly caught; the development is well managed, and the printing and toning in excellent taste.

10.—"An Afternoon Tea," by our respected Secretary, Mrs. C. L. Pierce, is a most laudably ambitious endeavor to present a subject difficult to handle with the appliances ordinarily at the command of an amateur—this more particularly with respect to the lighting, so as to give to the features piquant animation. This is especially seen in the young lady to the right in the picture, over whose face a deep shadow casts a sombre gloom. The picture has evidently been taken in a good light, and we think a finer crispness in its light and shade would have been brought out by a shorter exposure. The accompanying memorandum says it was given five seconds, with a Steinheil lens, on an orthochromatic plate.

11.—"Oak Lodge Pasture," by W. F. Howell, shows a corner of a pasture field, with a line of fencing enclosing the scraggiest of trees, and some cattle at rest—altogether not a very picturesque subject, and one which perhaps a little patience in waiting an opportune moment when the sun would have dashed out some bright scintillations to save it from tameness. But possibly this may result from being overtimed, though, judging from the accompanying memorandum, which gives only a half-second of exposure, by a Darlot hemispherical lens, on a Seed 26 plate, it is indicated otherwise. We doubt whether Mr. H. was not mistaken as to his time—a half-second with cap is hard to guess.

12.—Our late President, Mr. Canfield, has been to the World's Fair, and sends one of the results of his camera work—a view from some point of considerable elevation, which enabled him to secure a picturesque vista, with many interesting groups in every variety of perambulating motion, and the famous Peristyle in the distance. It is a pleasing picture, but would have been improved by vignetting a little the immediate foreground, and allowing the upper portion to print out a trifle more distinctly. This, however, may be taken as a photographic rather than an artistic criticism.

13.—"Blowing Bubbles," by Miss E. E. White. This is a second picture by our talented member who achieved so much success in No. 2. In this, however, she has not been so successful. It was taken at seven o'clock in the evening, and given an exposure of six seconds. The timing for so late in the day would seem to be all right, and the developing, printing and toning seems also suitable; but the error in judgment was in choosing so late an hour for a genre subject. It is not to be wondered at that under the strain of six seconds of "motionless action," with the pipe and soap bubbles at their mouth, the girls should show evidences of stiff posing from being "being took," and that the little fellow at the right-hand corner should have been shaken with chill at sitting so long!

14.—A 4 x 5—a farm-yard scene, with two boys and goat wagon—by Percy Wells. The great fault of this picture is in not so arranging or setting the camera as to give the chief subject its proper place. The evident intention was to present the boys and their "rig" as the prime object, but they are put

literally in the shade both by the lighting, and the prominence given to the buildings in the background. To have lowered the camera and allowed more light on the figures would have brought out a much more pleasing picture.

"The Kodak Fiend at Sea," by Mrs. Laura H. Mull, presents a scene familiar enough to some of us—a pair of passengers, recovered from the agonies of seasickness, are enjoying their new-found health, and exercising their sea-legs in perambulating the deck of an ocean steamer. As a photograph, like most taken in the same circumstances, it is "nothing to boast of."

16.—Miss Lydia Strawn sends the portrait of a little girl seated in her rocker in the garden among the flowers. This might have been made a more interesting picture by exercising a little more care and thought. It was taken with a single lens, wide opening, and given five seconds' exposure. A stop would have given more decided definition, and the lack of careful focusing is evident. We would also recommend to our friend that she be in future more careful in trimming, and to use a sharp penknife and a straight-edge.

17.—"At Coney Island," by G. W. Hart, gives the railroad station at the famous watering-place, with an imitation Ferris wheel as the prominent objects portrayed. We have a notion that Mr. Hart can do a great deal better than this. We would also recommend to him the desirability of trimming and finishing with greater neatness.

18.—"At Woodland Heights, near Richmond, Va.," by the President. This is a piece of roadway picked out as a favorable bit for a picture for the Exchange; but on going to the spot the ground was found prëempted by a company of urchins to whom the appearance of a camera was an opportunity for fun, and of posing for the occasion after their own ideas of the grotesque, upsetting the equanimity of the operator so far as to warp his judgment and afterward discover only a mediocre picture while intended to be a *chef d'œuvre*, reminding him of the sentiment of the psalm he was required to memorize in a Scotch school in the long ago—

"The troubles that afflict the just,
In number many be!"

He hopes to be more successful next time.

In arranging the above I have endeavored to assort the pictures in the order in which in my judgment they merited. Possibly several, in the opinion of others, ought to have been given a higher precedence; but, knowing the members only through their pictures, and having no personal preferences, I have endeavored to judge righteous judgment, and trust it may give satisfaction to the Club, excite those to whom the first honors have been awarded to still greater efforts to excel, and the humbler workers to seek a higher place.

Robert Whittet,
President.

Queries Answered.

No. 511.—I have been trying to clean some old lantern-slide plates in order to use them for covers, but I find it next to impossible to remove *all* the emulsion. I have soaked the plate in a solution of red prussiate of potash and hypo with good effect, but still a good deal remains that I cannot remove. What shall I do next?

Answer.—The only thing you can do now, is to scrape the emulsion off with a knife.

Red prussiate has the tendency to harden gelatine, and to employ it for the purpose stated is entirely wrong. To remove gelatine from useless plates, soak them in water to which about 25 per cent. of nitric, sulphuric, or hydrochloric acid has been added. Acids destroy the viscosity of gelatine. After soaking the plates in the acid mixture for several hours, turning them occasionally, you may finally wash off the softened gelatine under the tap.

No. 250 had a young lady to show him a negative with what he supposed to be a very distinct and intense flare spot in the centre. He examined the lens carefully, pointed the camera in every possible direction, but could in no instance discover a flare on the ground glass. What is the matter? he asks.

Answer.—After having sent for the negative in question we are prepared to answer.

That is not a flare; it is too intense to be so, and too irregular in shape. If you examine the front of your camera you will very probably find a tiny little hole in the immediate neighborhood of the lens. The light admitted by it does the mischief.

No. 803 shows albumen prints with round spots of greenish-gray color. As he has worked strictly according to instruction, and such spots occur occasionally only, he, of course, finds fault with the paper.

Answer.—These spots are not fixed, that is all. Move your prints while in the fixing bath and they will never appear, at least this particular kind of spots.

No. 804 has another kind of spots. They are of yellow and brown color, covering in some instances the greater part of the picture. The prints are

on chloride of silver gelatine emulsion, and toned in the combined bath.

Answer.—The cause of these spots is insufficient fixing. When chloride of silver is dissolving in hypo two double salts of hyposulphite of silver and hyposulphite of sodium are formed, which to

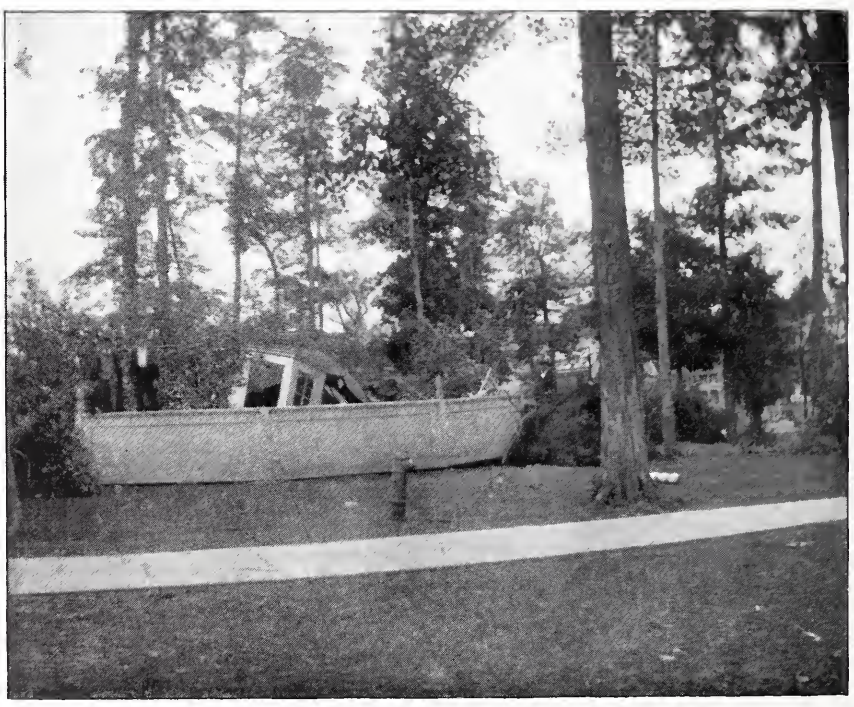


dissolve require a great excess of hypo. If any of these salts remain undissolved, and the print is afterward exposed to light, the double salt is reduced to sulphide of silver, of yellow, brown and finally black color. And that is one of the valuable points of the combined bath; it contains scarcely hypo enough to dissolve the products of the fixing process, especially when being used repeatedly.

No. 511 sends us a number of portraits and groups to show how he advances gradually. These pictures are very good in most instances. The groups might however be arranged differently and to better advantage. We admit it to be not very easy to pose a group of, say, twenty or twenty-five persons, and people of all ages among them, but as Mr. Robinson has taught us to bring harmony in such a group, we should at least preserve its pyramidal form. A group should be composed of several small pyramids, and of these is formed the group entire.

But far more interesting than Prof. Espey's portraits are the pictures he took on the Assembly grounds a day after the terrible storm and hurricane of August 28th. As when the scythe of the mower passes over a meadow, so passed the storm over Chautauqua. Where once were pleasant groves, there are bare spots; the giant elms, oaks and maples are piled upon each other to make one think firewood will be much cheaper the coming season. The storm played havoc at the lower end of the grounds; many trees have been swept away or uprooted The dear old *Gym* is now visible from the front; the trees shielding it from the intrusion of the camera are mostly all gone, and the building itself presents that barrel shape Mr. Traill Taylor illustrates certain lens distortions with.

Of the Pagoda, over the model of Jerusalem, nothing is left but the fence. In former years every camera coming to the grounds was pointed at that highly interesting subject. Last year the superinendent of the grounds put a wire fence around it to the great detriment of all photographic effort. The Nemesis of August 28th destroyed the screen;



we hope it will never be put up again.

No. 779.—Mountain views and beautiful cloud effects. The best picture he has ever made.

THE PHOTOGRAPHIC TIMES

AND

AMERICAN PHOTOGRAPHER.

VOLUME XXIII.

EDITOR,

W. I. LINCOLN ADAMS.

ASSOCIATE EDITORS,

CHARLES EHRMANN. WALTER E. WOODBURY.

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1893.

ABBREVIATIONS.

Editorial.....Ed.
Editorial Notes.....Ed. N.
Editorial Table.....Ed. T.
Contributions.....C.
Correspondence.....Cp.
Notes and News.....N. & N.
Queries and Answers.....Q. & A.

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W. I. LINCOLN ADAMS.

Associate Editors:
CHARLES EHRMANN,
WALTER E. WOODBURY.

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THE PHOTOGRAPHIC TIMES PUBLISHING ASSOCIATION,
423 Broome Street, New York.

WHAT THE PRESS IS SAYING ABOUT "THE AMERICAN ANNUAL OF PHOTOGRAPHY FOR 1894."

"Holds its Own."—"'The American Annual of Photography and Photographic Times Almanac' for 1894 holds its own among its predecessors. It contains the usual number of helpful articles upon almost every conceivable photographic subject, and illustrations in great number."—*Wilson's Photographic Magazine.*

"By far the most interesting and important of the illustrations in 'The American Annual of Photography' for 1894 is the stuffed bird, a poll parrot, printed in three colors by Mr. Kurtz's Coloritype Co. We will not undertake to say how many impressions would be required by the methods heretofore in vogue, but the difference in cost must be very great."—*The Nation.*

"The American Annual."—"The volume contains the customary articles from a wide circle of amateur and professional photographers, beginning with a brief account, with portrait, of Johann Heinrich Schultze, 'the Columbus of Photography.' There are the usual lists of American and foreign photographic societies, with their officers, and of hotels having dark-rooms for the convenience of tourist photographers."—*N. Y. Evening Post.*

"'The American Annual of Photography, for 1894,' presents a remarkably good coloritype of a parrot, printed in three colors; a portrait of Professor Johann Heinrich Schultze, of Halle, the 'Columbus of Photography,' and many other interesting illustrations. Among the contributed articles the most remarkable are those on 'Animal Motion in Art,' 'Photographic Star Brightness,' and the 'Constitution of and Relationship between Atomic Structure and the Developing Power of some Aromatic Compounds.'"—*The Critic.*

"Good Value."—"Once more we have to welcome this annual visitor, and certainly the '94 volume is fully up to its predecessors in literary matter, and in advance of them in its illustrations, the chief of these being a three-color process-block print by Kurtz of New York; although possibly not perfect, it is decidedly good. Besides this, there are two prints on aristotype paper, three collotypes, and nineteen half-tone, or process-blocks, besides numerous diagrams, etc., in the text.

"For the illustrations alone the book is worth the money, and then with the articles and tables, etc., it is good value, and should not be missed."—*The Amateur Photographer.*

"Many Features of Interest."—"'The American Annual of Photography and Photographic Times Almanac' for 1894 contains many features of interest to all interested in photography. The list of contributors is good, and the range of subjects covered is unusually large, which has led to a slight increase in the number of pages over last year. There are numerous illustrations, several of which are excellent; but probably the most interesting is the heliochrome frontispiece by Kurtz. This is a very successful attempt at a reproduction in natural colors by photographic processes, the print being the result of three printings, respectively, in yellow, blue and red inks from half-tone plates."—*The Photo American.*

"Full of Good Process Work."—"The volume for the approaching year has reached us, and we can congratulate THE PHOTOGRAPHIC TIMES upon its quality and variety. As usual, it is full of good process work, carefully printed, and, in the majority of cases, the pictures are interesting, if not always artistic. The most striking example of process work in the book is that of a parrot, printed in three colors by the Coloritype Co., of which W. Kurtz is the president. It is a rendering of which the producers may well be proud. The contents are by well-known workers and writers in the United States and in Britain, and cover considerable ground. The four hundred and odd pages which form the book contain items of interest to all workers, whatever their bent."—*Photography.*

"The large volume gives one of the numerous indications as to the wide popularity of photography. The frontispiece is a specimen of three-color printing by Kurtz, of New York [Coloritype Co.], done from relief blocks, and it is a remarkably interesting and successful example of such work. There are twenty inset illustrations, including a well-selected variety of subjects. Perhaps the very best of these—whether looked upon as a picture or as a photograph—is the view in Prospect Park, Brooklyn, by Mr. W. I. Lincoln Adams; the atmospheric effect, the reflections in the water, and the sky, being exceptionally well-rendered.

"The literary portion of 'The Annual' comprises a mass of well-selected tabular matter, with various photographic data, extracts or summaries, showing the progress of the year, and numerous contributed articles, mostly of that practical character which will make them acceptable to the general worker."—*Photographic Work.*

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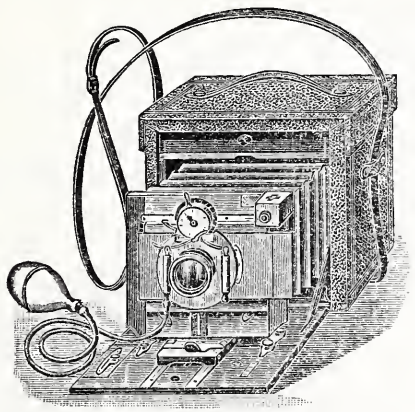
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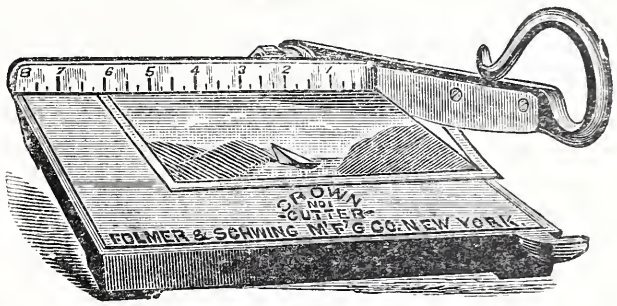
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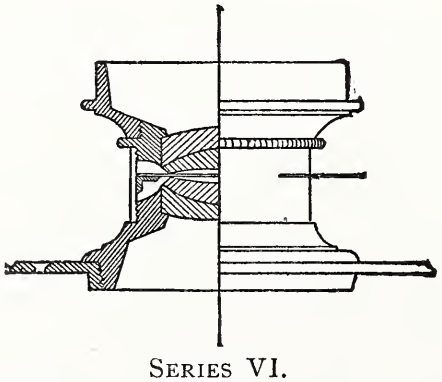
Written expressly to help the beginner in perplexity.

Price, reduced to 25 cents.

Sent postpaid to any address on receipt of the price by

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STEINHEIL'S
WIDE-ANGLE COPYING APLANAT.



SERIES VI.

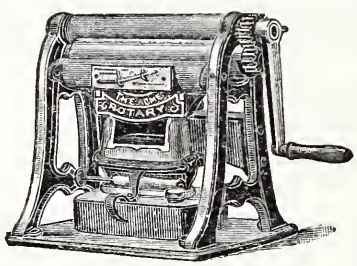
Specially designed for copying line work, paintings, engravings, etc. Without a rival for microscopic sharpness evenly divided over the whole field.

Steinheil Prisms, Series VII.—For use in connection with the above lenses for obtaining reversed negatives without stripping the film.

The above lenses and prisms are being extensively used in the largest photo-mechanical establishments in preference to the most expensive lenses of other types.

Write for catalogue to

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Acme Improved Rotary Burnisher.

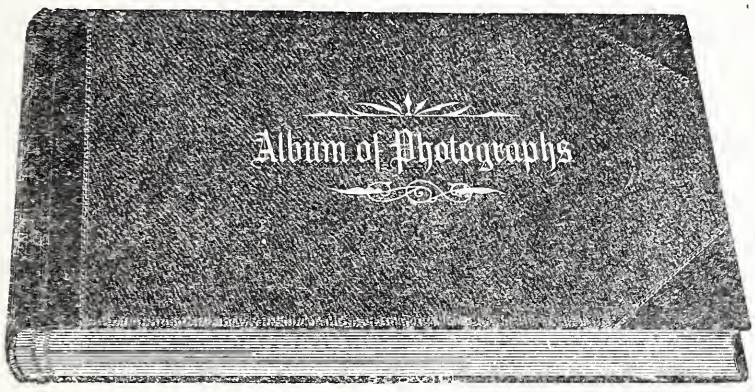
8 inch	ROTARY, Alcohol, Oil or Gas, -	$13.00
11 "	" " - -	20.00
15 "	" "	25.00

NOTE.

Quick Heater.
Saves seventy-five per cent. of gas, oil or alcohol.
No sweat, no smoke, no smell.
Acme Horizontal Thermometer attached.
No blistered prints, uniform results
Simplest Rotary Burnisher ever made.
One-hand wheel adjustment.
Full Nickel Finish.

No adjustment bar over top of roll, allowing perfect manipulation of picture. Guaranteed in every particular

FOR SALE BY ALL DEALERS.
MANUFACTURED BY
ACME BURNISHER CO.,
FULTON, N. Y.

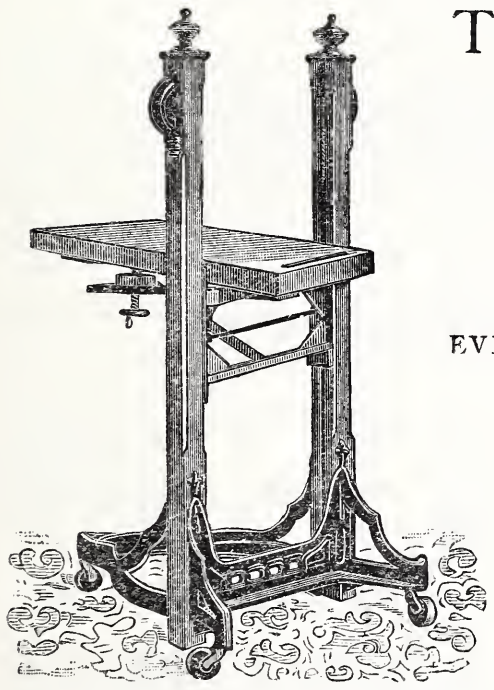


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Size of Cards.... ..... For Photographs (size)	6x7 4x5	7x10 5x 8	10x12 6½x8½	11x12 8x10	14x17 11x14
Plain..... With Gilt Lines.. ...	$1.25 1.25	$1.50	$2.25	$2.50	$5.00

Each album has 48 pages, 24 leaves. In them the finest card-board only is used, chemically free from anything that could injure a print.



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Are using The Semi-Centennial Camera Stand.

EVERYTHING USED AT THE FAIR IS
A GUARANTEE OF ITS VALUE.

BUY A SEMI-CENTENNIAL STAND
AND YOU WILL MAKE NO MISTAKE.

500 Now in Use. **Every One Likes It.**

ASK YOUR DEALER ABOUT IT, OR WRITE

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SOMETHING NEW UNDER THE SUN—A REVOLUTION IN THE ART OF MANUFACTURING.

After many years of scientific research a preparation for the salting of plain photographic paper has been discovered, by which method the finest printing results are obtainable. The advantages are apparent to all.

I.—Constant use will not discolor the silver bath.
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IV.—The *"New Matt-Surface"* paper when sensitized will keep fresh for a long time if properly stored.
V.—The price has not been advanced.

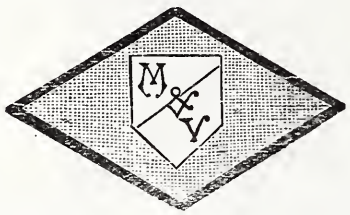
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It's as sterling as the hall-mark of England—not so old, but just as good. No question is ever raised as to merit once it is known.

Our **Night-Hawk** Camera, for hand or tripod, is a good seller and extensively advertised. It does good work and has come to stay.

We make ***Photographic Lenses, Telescopic Objectives, Marine Glasses, Opera Glasses,*** in all mountings.

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Will keep longer than any other.

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THIS DOES NOT INTEREST ANY EXCEPT MONEY SAVERS!!

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THREE NEW SERIES ZEISS-ANASTIGMAT LENSES.

SERIES I.—Highest Grade Portrait Lens
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SERIES IIIa.—Instantaneous Outdoor Lens, Specially Suited to Amateur Use.

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"Three Crown"

Albumen Paper

Is absolutely the BEST.

WHY?

Because none but the Best of the Rives Paper is selected for Albumenizing the THREE CROWN BRAND.

It is therefore free from the imperfections often to be found in other brands, which arise from defects in the plain paper, and hence cannot be avoided.

SLOW. **FAST.** **EX. FAST.** **AURORA, D. C.**

THE HAMMER DRY PLATE.

BEST AND CHEAPEST FIRST-CLASS PLATE ON THE MARKET.

Three Grades of Rapidity. Four Brands of Plates.

SLOW. For Landscape Copying, Transparencies and Photo-mechanical work.

FAST. Is a medium Rapidity for Portrait and Landscape Photography.

EX. FAST. Is the most Rapid Plate made, and the General Favorite where quick work is required.

AURORA, D. C. The Double Coated Plate which is the greatest advance in photography since the introduction of the Negative Process. NO HALATION, NO SOLARIZATION, allowing of over 1,000 per cent. variation in exposure.

Indispensable for Interiors and Landscape work, and an advantage in Portrait Photography. A trial will convince the most skeptic.

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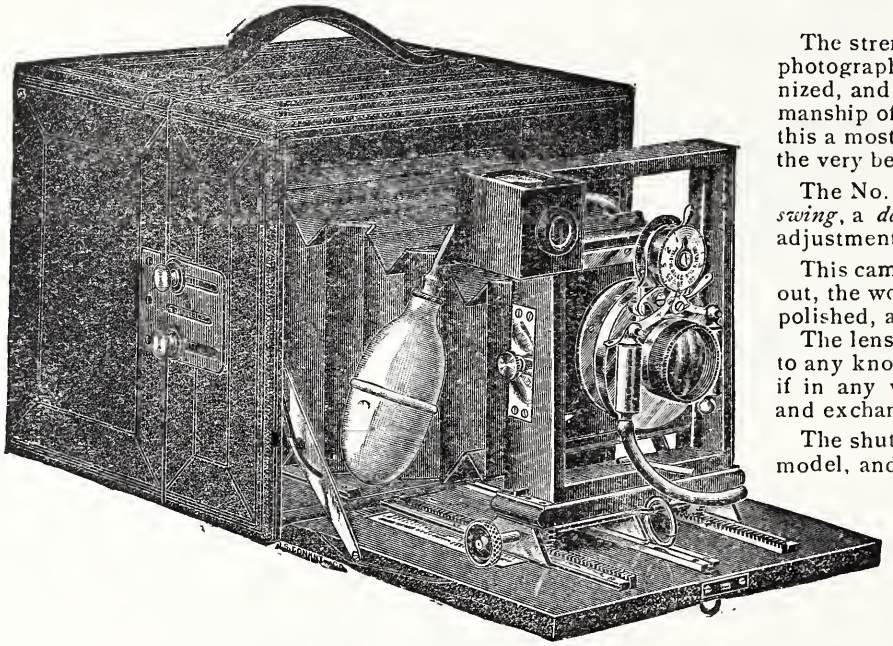
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HAMMER DRY PLATE CO.,

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THE 5x7 FOLDING HAWK-EYE, No. 2.

With Taylor & Hobson, or Kamaret Lens, and Bausch & Lomb Improved Shutter.



THE 5X7 FOLDING HAWK-EYE. NO. 2.

The strength of the above combination from photographic standpoint will be readily recog nized, and the beautiful finish and fine work manship of camera, lens and shutter, also mak this a most desirable outfit for those who wan the very best.

The No. 2 model has, in addition to the *doubl swing*, a *double sliding front*, thus giving ever adjustment which will ever be required.

This camera is of extra fine hand finish through out, the wood work being ebonized and Frenc polished, and the leather is genuine morocco.

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Price, as above, with 3 F.W. Holders, for plates or cut films, $60
" Blair's Improved Roll Holder, with Automatic Tally, 9

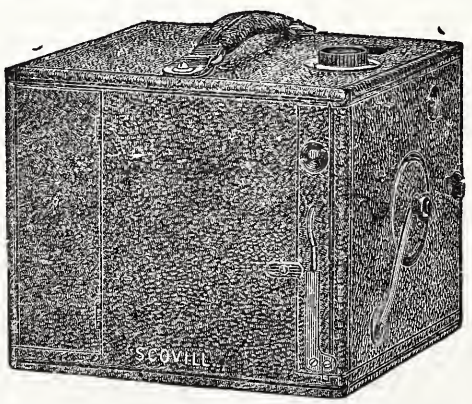
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THE WATERBURY DETECTIVE CAMERAS.



MANUFACTURED BY THE AMERICAN OPTICAL CO.

Timed and Instantaneous Photographs. This is the only Detective Camera which is as well adapted for making timed views as for photographing quickly moving objects. The negatives produced are of such sharpness that they may be enlarged to almost any size, It is

The only Detective Camera made for plate for tripod, and with ground-glass the full size of the plate, just as in an ordinary view camera. This ground-glass is where it cannot easily be broken.

The Recessed Finder shows *the same image* as is include on the ground-glass, though diminished in size. With out this accurate finder, one cannot be sure of what i taken in or left out of an instantaneous photograph

The Focusing Scale is beside the Finder, where it ma be readily seen and adjusted.

Price List.

	Leather Covered
4 x 5 Waterbury Detective Camera, with 2 Double Holders	$25 0
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FOR SALE BY ALL DEALERS.

Spoiled in the Mounting!

YOUR PHOTOGRAPHS

are

SLOUCHY, SMOUCHY,
COCKLY, SPOTTY,

Because you have used an inferior or make-shift mountant.

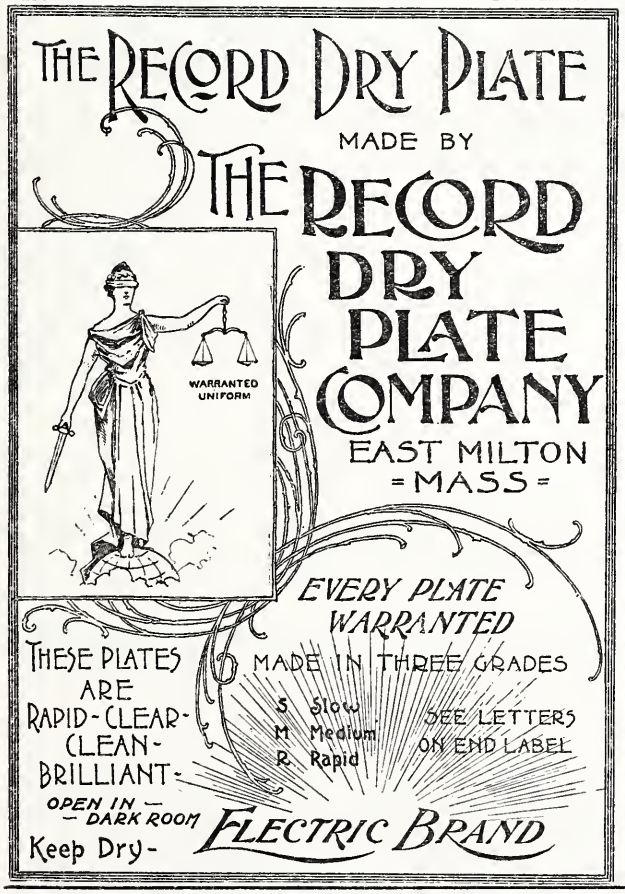
HIGGINS' PHOTO MOUNTER

is an always-ready adhesive which will not spill, spatter, nor drop off the brush. Never hardens, separates or becomes gritty. Does not cockle, strike through nor change the tone. Never moulds, sours or deteriorates in any way. A unique adhesive, scientifically made to meet the special requirements of photograph mounting. Fully guaranteed. FOR SALE BY ALL DEALERS AND JOBBERS.



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HOW?

—BY USING—

THE SCOVILL RUBBER APRON AND SLEEVES.

These Aprons are devised especially for dark-room and laboratory work. They are made in two sizes, are neatly lined, and completely cover the person of the operator wearing one. They are made of rubber which does not crack or crinkle when mussed, and will be found a great convenience by the practical photographer, be he professional or amateur.

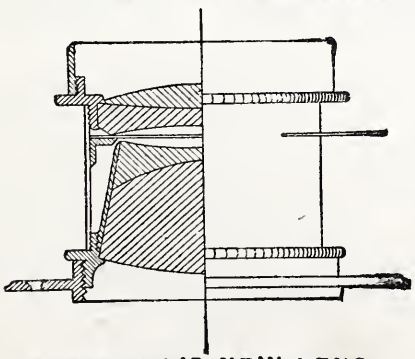
The Rubber Sleeves are made to slip over the arms, protecting the operator's coat or shirt to the elbows.

THE PRICE FOR THE LARGE SIZE IS.....	$1 00
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SLEEVES, PER PAIR.....	50

They will be sent, postpaid, to any address, on receipt of price.

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THE UNRIVALED STEINHEIL LENSES.



STEINHEIL'S NEW LENS.

These Lenses not only maintain their old-established reputation, but continue to lead in the field of progress. Made in six different series for every description of work. Special attention is called to

Series No. II, Patent Antiplanatic, the newest conception in rapid lenses. For Instantaneous Portraits, Large Heads, Full Figure Groups, Architecture, and Landscape. A marvel of illumination, depth and rapidity. No Photographer or Amateur should purchase a lens before testing a Steinheil, Series No. II. See accompanying cut.

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Series No. VI, Wide Angle Aplanat, which has no rival for copying Maps Charts, Paintings and Engravings. It is the Photo-lithographer's favorite.

Send or Illustrated Catalogue and Price-List to

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EVERYTHING FOR THE CAMERA

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Ross Lenses

NEW SERIES.
Concentric, Universal Symmetrical, Working in F 5 6.
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Kodak Cameras,
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All the latest Hand and Tripod Cameras.

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THE SCOVILL MAGNESIUM COMPOUND

IS ENTIRELY FREE FROM POISONOUS INGREDIENTS.

In order to demonstrate this, quantities have been eaten at various times. We have often pounded it in a mortar to show that it does not explode.

THE GENUINE ARE IN SILVER WRAPPERS.

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In ounce bottles, with fuses.	$0 50
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	Per Doz.	Per Gro.
No. 1, put up in packages containing 6 cartridges.	$0 50	$6 00
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No. 2½ " " ..	1 20	13 00
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Please remember that in speed and every desirable optical quality no lenses yet constructed can rival

Voigtländer's Euryscope Lenses,

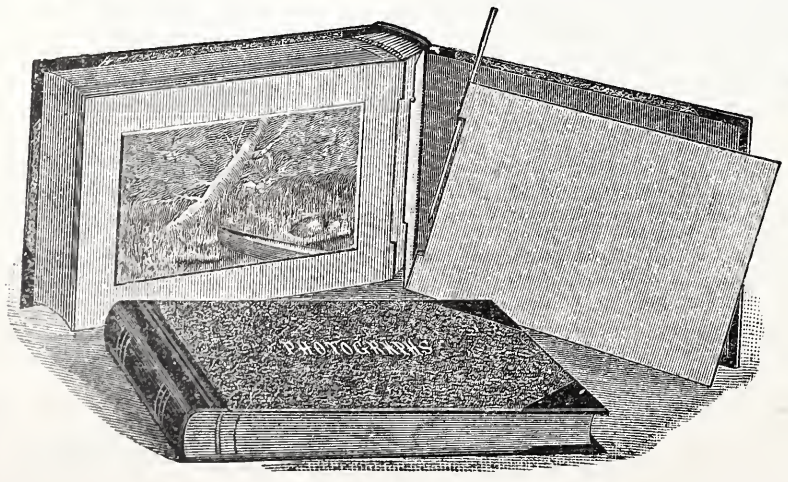
which are made in SEVEN different styles.

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IMPROVED SPRING BACK WITH TWENTY-FOUR COLLINS CARDS. WHITE AND GRAY.

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Nos. 1, 2, 2½, 3, 3½ and 4 are handsomely finished in Morocco, half leather bound, with gilt title, and enclosed in a neat box. No. 5 is extra gold finish.

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imitations
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WATERBURY
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Look out
for the
genuine, too,
and see
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It is
the Best
and Cheapest.

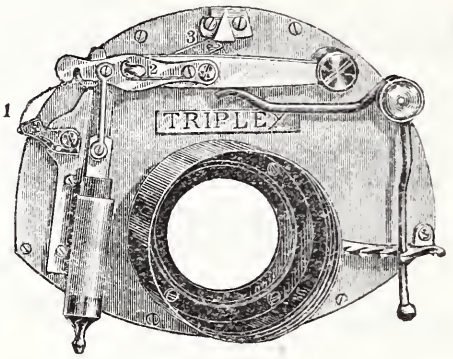
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WHOLESALE AND RETAIL MANUFACTURERS OF

PHOTOGRAPHIC SHUTTERS,

COLUMBIAN TRIPLEX

Has Automatic Safety Shield, thereby adapting it for use with Roll Film Hand Cameras.



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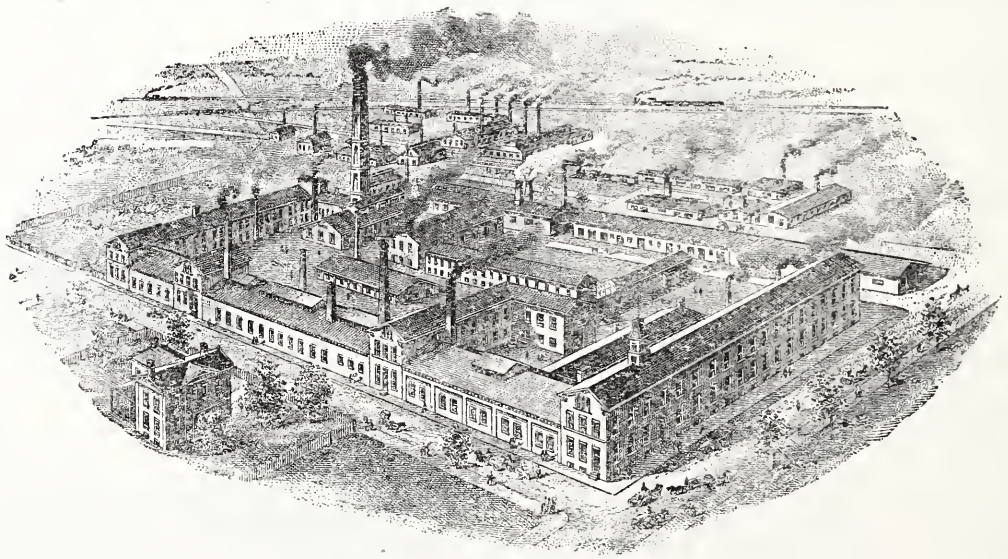
ATHLETE.
RAPID,
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STORAGE FLASH-LAMPS

IN BRASS OR

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MANUFACTURING

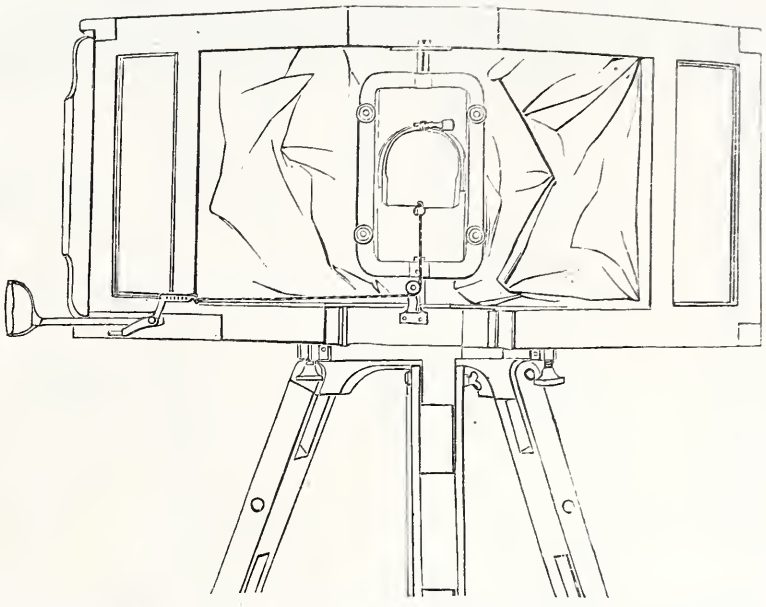
CHEMISTS and REFINERS

OF PHOTO WASTE.

Works at **NEWARK, N. J.**

THE SCOVILL

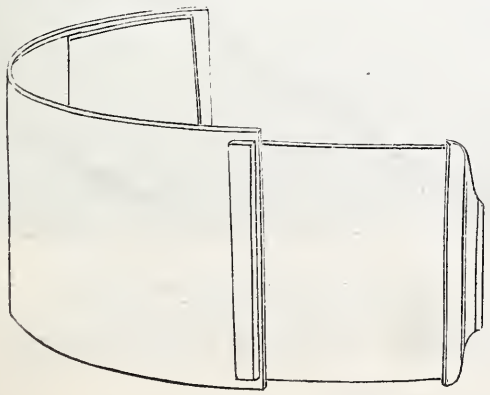
Panoramic Camera.



WE take pleasure in introducing to the photographic fraternity our new Panoramic Camera, which is made in various dimensions up to the size capable of making photographs 18 x 48 inches.

A new design of constructing these cameras in hemispherical form has been invented; a new movement of crossing the lens over the segments of the circle, and an automatic release for the shutter has also been constructed. Carbutt's No. 27 films, or his orthochromatic films of the same sensitiveness, are used by means of an ingeniously constructed flexible dark slide, which permits of the necessary curve to conform with the back of the camera. The cameras are solidly and serviceably made, elegant in finish, and in every way maintain the world-wide reputation of the American Optical Company. The cuts shown herewith give an idea of the external appearance of the camera, and the dark slide for holding the film.

The prices of these cameras, including in each case a substantial wooden box or trunk for holding the instrument, a suitable tripod, a panoramic printing frame, two holders, two developing baths, and the celebrated Swift lens, are given below.



Price of The Scovill Panoramic Outfit for making photographs 10 x 30 inches, complete as above, ... $250

Price of The Scovill Panoramic Outfit for making photographs 16 x 43 inches, complete as above, ... 300

The Scovill & Adams Company,

423 Broome Street, New York City.

A Letter Which Explains Itself.

World's Columbian Exposition,
Department of Photography.

Blakeslee & Stinchfield, Managers
E. D. Arnold, Official Photographer

Chicago, July 2nd 1893

Mr. Morris Adams Co.
Newyork N.Y.

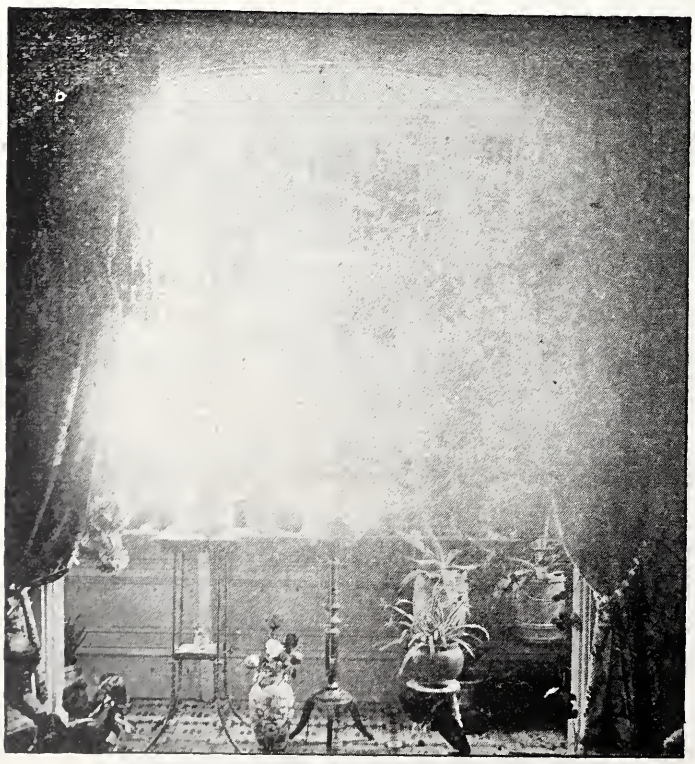
Gentlemen— I have used the American Plate Co's apparatus exclusively in my work as Chief of the Department of Photography Worlds Columbian Exposition.

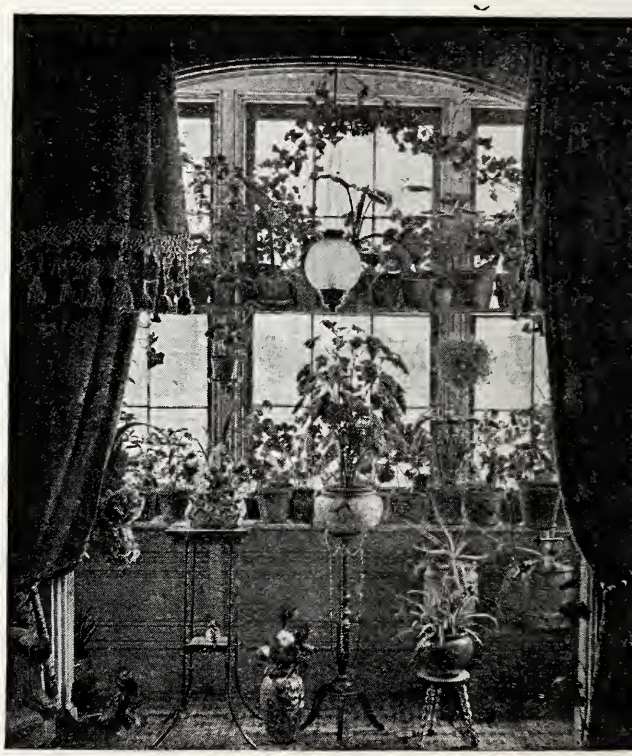
All goods for this work were purchased from the best workshops of the world with a view of obtaining the best possible results during the year, and of obtaining the largest possible value after the Exposition is over. Your apparatus is in my opinion the best made

Very sincerely yours
E. D. Arnold

Wuestner's "Imperial Non-Halation" Plates.

LOOK ON THIS PICTURE **and ON THIS!**





Reproduced from Negative on ordinary Plate

Reproduced from Negative on "Imperial Non-Halation" P

Both Negatives Exposed on the Same Subject, One Immediately After the Other.

Note the Contrast!

For sale by all dealers in photographic materials.

THE SCOVILL & ADAMS CO., Trade Agents, 423 Broome Street, New York.

Something New!

The Columbian Developer



Complete in One Solution.

The Very Latest and The Very Best.

The Columbian Developer is a powerful, new, one-solution developer especially suited for undertimed and instantaneously exposed plates. It yields negatives of the most beautiful half-tones and middle tints, and of unsurpassed printing qualities.

Full directions for working on each bottle.

Price, for Eight-ounce Bottle, only 30 Cents.

For Sale by all Dealers in Photographic Materials.

NOTHING NEW UNDER THE SUN,

But it is an accepted fact that a good, evenly-coated **Collodion Paper** that can be relied upon, would receive recognition with photographers. The Murdoch-Wunderlich Co., of Minneapolis, Minn., heretofore exclusive manufacturers of the **MURDOCH PHENOMENAL PAPER**, have made arrangements whereby their paper will be also made, at the below address, for trade east of the Mississippi River. Dealers and users are requested to send all orders to Brooklyn, with the full assurance of receiving the same quality of paper as heretofore.

Murdoch Phenomenal Paper (*Collodion*) has received many favorable comments during its two years of manufacture.

Users of this class of paper will find, upon first trial, *that excessive* curling has been done away with.

Brick tones are not necessary. Easy and satisfactory.

A trial will be a small expenditure, and we know you will be pleased.

Send 25 Cents for Sample Dozen.

OMEGA SENSITIZED PAPER TRADE MARK

To users of our Omega, we would say:

If, upon ordering our goods from your dealer, you are put off with the information that "they can't get it," "haven't got any at present," "just expecting some fresh," etc., but substituting some other manufacture at a higher price than ours, we would request you to write us, and we will inform you where you can, or supply you ourselves with paper that is perfectly fresh and guaranteed to be equal to any in the market. All photographers are, no doubt, fully acquainted with the intended rise in prices, and, if it succeeds, they pay for the music. Do you want to pay 15 per cent. more for your paper, an article which you use more of than anything else in your gallery—the very Bread that supports your trade? If so, continue to buy and allow your dealer to induce you, through numerous "reasons" which he may give you, to pay $1.00 for goods you are now paying and can get for 85 cents.

To those desiring to try our paper, we will send sample packages for 25 cents with print, and will have them supplied with fresh paper afterward.

WE CLAIM { PURITY AND CLEARNESS OF WHITES.
TRANSPARENCY OF SHADOWS AND HALF-TONES.
HARDNESS OF SURFACE WITHOUT PEELING OR CRACKING.
AND GENERAL BRILLIANCY OF PRINT

PHOTOGRAPHY IN COLORS—EXCELO CARBON.

MORE ATTENTION WAS ATTRACTED TO OUR EXHIBITION OF **CARBON PRINTS** *AT*
COLUMBUS and CHICAGO,

Than anything else of we could possibly expect. This was mainly on account of the attractive colors we are now getting our tissue out in, there being fifteen in all, and that the progressive photographer is continually looking out for new things. He finds it imperative to keep up with the times, or else go under. All our tissue is made to keep indefinitely, and full instructions are sent with each package The cost is slightly above silver paper, but the effects cannot be equaled by any known process. This we know is saying much, but we offer to convince any who sends us references, by sending them a collection of carbon prints mounted for their inspection, with the understanding that they pay charges and return same within twenty-four hours. We will also make enough prints from their negatives to give a respectable show in their window or case, at a great reduction from our regular price, on first order. This is to introduce our work and tissue, we having many comments like the following:

* * * **Prints were received yesterday, and were very satisfactory. We will undoubtedly send you many such orders.**

THE J. F. RYDER CO., Cleveland, Ohio.

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VICI MAT SURFACE SENSITIZED PAPER

FOR PORTRAITS OR VIEWS, MAT SURFACE,
AND
REPRODUCTION OR NEWSPAPER WORK.
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